

# SHEET INDEX

| FIG.                  | CONTENTS                                                                                                                                            | SHEET NO. | ISSUE NO. |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  | OLD SHEET NO. |  |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|---------------|--|
|                       |                                                                                                                                                     |           | 5         | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |  |  |               |  |
|                       | SHEET INDEX, SHEET 1<br>SUPPORTING INFORMATION                                                                                                      | 0100      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
|                       | SHEET INDEX, SHEET 2                                                                                                                                |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
|                       | CIRCUIT NOTES 101 TO 104                                                                                                                            | 0101      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
|                       | CIRCUIT NOTES 105 TO END<br>INFORMATION NOTES<br>FIGURES AND OPTIONS USED TABLE<br>KEY TOPS                                                         | 0102      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 1<br>2<br>3<br>5<br>8 | LINE KEY CIRCUIT<br>FLASH, RING AND HOLD KEY<br>BATTERY SUPPLY CIRCUIT<br>TELEPHONE SET EQUIPMENT UNIT<br>HOLD RELAY CIRCUIT                        | 0103      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  | 011           |  |
| 6<br>9<br>10          | AUTOMATIC CUTOFF CIRCUIT<br>HOLD RELAY CIRCUIT<br>SIGNALING CIRCUIT                                                                                 | 0104      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| A<br>B<br>C<br>D      |                                                                                                                                                     | 0105      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 4<br>7                | HOLD RELAY CIRCUIT (MFR DISC)<br>SIGNALING CIRCUIT (MFR DISC)                                                                                       | 0106      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
|                       | CIRCUIT REQUIREMENT TABLE                                                                                                                           | 0107      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
|                       | EQUIPMENT NOTES                                                                                                                                     | 0108      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 51                    | FOR FIG. 1 AND 2 ORIG KEY UNIT<br>(MFR DISC)                                                                                                        | 0109      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 52                    | FOR FIG. 1 SUPPLEMENTARY KEY UNIT                                                                                                                   | 0110      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 53<br>54              | FOR FIG. 3 (MFR DISC)<br>FOR FIG. 6                                                                                                                 | 0111      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| PART<br>OF<br>55      | CONNECTIONS TO PUNCHINGS 1, 2, 3 & 4<br>FOR VARIOUS LINE COMBINATIONS OF<br>FIRST AND SECOND GROUPS AND<br>INTERCOMMUNICATING LINE WITHOUT<br>A KEY | 0112      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  | 012           |  |
| 55A                   | ALL FIRST GROUP IN ORIG UNIT                                                                                                                        |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55B                   | ALL SECOND GROUP IN ORIG UNIT                                                                                                                       |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55C                   | FIRST AND SECOND GROUP IN ORIG<br>UNIT                                                                                                              |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55D                   | ALL FIRST GROUP IN ORIG AND SUPL<br>UNITS                                                                                                           |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55E                   | ALL SECOND GROUP IN ORIG AND<br>SUPL UNITS                                                                                                          |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55F                   | FIRST AND SECOND GROUP IN ORIG<br>UNIT AND SECOND GROUP IN SUPL UNIT                                                                                |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55G                   | FIRST GROUP IN ORIG UNIT, SECOND<br>GROUP IN SUPL UNIT                                                                                              |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55H                   | FIRST GROUP IN ORIG UNIT FIRST<br>AND SECOND GROUPS IN SUPL UNITS                                                                                   |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55I                   | ALL FIRST GROUP IN ORIG AND SUPL<br>UNITS                                                                                                           |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55J                   | FIRST GROUP IN ORIG UNIT, SECOND<br>GROUP IN SUPL UNITS                                                                                             |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
| 55K                   | SECOND GROUP IN ORIG AND SUPL<br>UNITS                                                                                                              |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |
|                       | CONT ON NEXT SHEET                                                                                                                                  |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |  |

## SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.
6. "OLD SHEET NO." REFERS TO SHEET NO. PRIOR TO ISSUE.

## SUPPORTING INFORMATION

| CATEGORY              | NO.                        |
|-----------------------|----------------------------|
| EQUIPMENT INFORMATION | ED-69053-01<br>ED-69071-01 |

REPLACING SD-69077-01

SD-69195-01

Station Systems  
KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

BELL TELEPHONE LABORATORIES  
INCORPORATED

3S

AT&T  
STANDARD

SD-69195-0100

SHEET INDEX A  
17 FIGURES

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SD-69195-0100

5

| DWG | CD       | DWG     | CD     | DWG | CD  |
|-----|----------|---------|--------|-----|-----|
| ISS | ISS      | ISS     | ISS    | ISS | ISS |
| 1   | 1        | 2A      | 1      | 3D  | 2D  |
| 4D  | 2D       | APR 10  |        |     |     |
| DWG | EE OR CD | DATE    | DRAWN  | APP |     |
| ISS | ISSUE    | ISSUE   |        |     |     |
| 5D  | 3D       | 5-25-59 | BY JHC | JPS | BM  |
|     |          |         | DNC    | LNA |     |

## SHEET INDEX (CONT)

| FIG        | CONTENTS                                                                                                                              | SHEET NO. | ISSUE NO. |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  | OLD SHEET NO. |
|------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|---------------|
|            |                                                                                                                                       |           | 5         | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |  |  |               |
| PART OF 55 | CONNECTIONS TO PUNCHINGS 1,2,3 & 4 FOR VARIOUS LINE COMBINATIONS OF FIRST AND SECOND GROUPS AND INTERCOMMUNICATING LINE WITHOUT A KEY | 0113      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  | 012           |
| 55L        | FIRST GROUP IN ORIG UNIT AND NEXT SUCC SUPL UNITS, FIRST AND SECOND GROUP IN NEXT SUCC SUPL UNIT, SECOND GROUP IN SUCC SUPL UNITS     |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |
| 55M        | FIRST AND SECOND GROUP IN ORIG UNIT, SECOND GROUP IN SUPL UNITS                                                                       |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |
| 55H        | FIRST GROUP IN ORIG AND NEXT SUCC SUPL, SECOND GROUP IN SUCC SUPL UNITS                                                               |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |
| 56         | FOR FIG. 1 AND 2 ORIG KEY UNIT                                                                                                        | 0114      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  | 013           |
| 57         | FOR FIG. 3 AND 9                                                                                                                      | 0115      | 5         |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |
|            |                                                                                                                                       |           |           |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |               |

DRAWING  
ISSUE  
50

50

SD-69195-0100

KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

SD-69195-0100

SHEET INDEX B

BELL TELEPHONE LABORATORIES  
INCORPORATED

35

5

5



## CIRCUIT NOTES:

| 101.           | DESIG | AMP           | POTENTIAL FUSED | ONE PER          |
|----------------|-------|---------------|-----------------|------------------|
|                |       | 2             | 14 - 26V TALK   | FIGS. 2,3,6 & 10 |
| BATTERY SYMBOL |       | VOLTAGE RANGE |                 |                  |
| -20            |       | 14-26V        |                 |                  |

102.

| FEATURE OR OPTION                                                                                                                                                                                                    |                                                                                                                                                                                           | FIG. | APP OR WIR | QUANTITY                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|-------------------------------------------|
| ORIGINATING LINE KEY UNIT WITH FLASH, RING AND HOLD KEY.                                                                                                                                                             | RIGHT TO LEFT                                                                                                                                                                             | 1,2  | G          | 1 PER ATT STA FOR FIRST MAX 10 LINES      |
|                                                                                                                                                                                                                      | LEFT TO RIGHT                                                                                                                                                                             |      | Z          |                                           |
| SUPPLEMENTARY LINE KEY UNIT.                                                                                                                                                                                         | RIGHT TO LEFT                                                                                                                                                                             | 1    | U          | 1 PER ATT STA PER SUBSEQUENT MAX 10 LINES |
|                                                                                                                                                                                                                      | LEFT TO RIGHT                                                                                                                                                                             |      | F          |                                           |
| BATTERY SUPPLY CKT (PROVIDE WHEN ANY LINE IN THE SECOND GROUP IS USED) SEE NOTE 106                                                                                                                                  |                                                                                                                                                                                           | 3    |            | 1 PER ATT STA                             |
| TEL SET EQPT UNIT                                                                                                                                                                                                    |                                                                                                                                                                                           |      |            | 1 PER ATT STA                             |
| WHEN AN OPR HEAD TEL SET CAN BE CONNECTED TO A CO OR PBX LINE ON WHICH THE TOTAL CONDUCTOR LOOP TO THE CO OR NEAREST LONG LINE CKT (INCLUDING BOTH STA AND CO CONDUCTOR LOOPS IN CASE OF PBX) IS LESS THAN 300 OHMS. |                                                                                                                                                                                           | 5    | A          |                                           |
| WHEN OPTION A IS NOT REQUIRED                                                                                                                                                                                        |                                                                                                                                                                                           |      | E          |                                           |
| AUTOMATIC CUTOFF CKT (PROVIDE WHEN THE ATT IS TO BE CUT OFF FROM A LINE MULTIPLIED TO A REGULAR STA WHEN THAT REGULAR STA IS IN USE OR WHEN TIE LINES TO PBX ARE PROVIDED.) SEE NOTE 110                             |                                                                                                                                                                                           | 6    |            | 1 PER ATT STA                             |
| WHEN OPR SET IS REQUIRED                                                                                                                                                                                             | DIAL AREAS                                                                                                                                                                                | A    |            | 1 PER FIG. 5                              |
|                                                                                                                                                                                                                      | MANUAL AREAS                                                                                                                                                                              | B    |            |                                           |
| WHEN HAND TEL SET IS REQUIRED                                                                                                                                                                                        | DIAL AREAS                                                                                                                                                                                | C    |            | 1 PER FIG. 5                              |
|                                                                                                                                                                                                                      | MANUAL AREAS                                                                                                                                                                              | D    |            |                                           |
| HOLD RELAY CKT                                                                                                                                                                                                       | WHEN FIG. 3 IS NOT PROVIDED                                                                                                                                                               | E    |            | 1 PER ATT STA                             |
|                                                                                                                                                                                                                      | WHEN FIG. 3 IS PROVIDED                                                                                                                                                                   | 9    |            |                                           |
| SIGNALING CKT (PROVIDE WHEN 141 KEY TEL SYSTEM RINGDOWN TIE LINE OR STA LINE CKT IS PROVIDED).                                                                                                                       |                                                                                                                                                                                           | 10   |            | 1 PER ATT STA                             |
| ON ORIGINATING OR SUPPLEMENTARY KEY UNITS (FIG. 1) SEE NOTE 106                                                                                                                                                      | WHEN LINES IN BOTH GROUPS ARE FURNISHED, PROVIDE V OPTION BETWEEN THE KEY ASSOCIATED WITH THE LAST LINE OF THE FIRST GROUP AND THE KEY ASSOCIATED WITH THE FIRST LINE OF THE SECOND GROUP | V    |            |                                           |
|                                                                                                                                                                                                                      | NORMAL WIRING OF KEY UNITS. SEE NOTE 106.                                                                                                                                                 |      |            |                                           |
| ON ORIGINATING OR SUPPLEMENTARY KEY UNITS (FIG. 1) SEE NOTE 106                                                                                                                                                      | WHEN THE LINE ASSOCIATED WITH THE LAST KEY IS IN THE SAME GROUP AS THE LINE ASSOCIATED WITH THE FIRST KEY OF A SUCC KEY UNIT                                                              | W    |            |                                           |
|                                                                                                                                                                                                                      | WHEN V, Q OR M AND N OPTIONS ARE PROVIDED AT A PREC KEY AND AN INTERCOMMUNICATING LINE NOT ASSOCIATED WITH A KEY IS PROVIDED                                                              |      |            |                                           |
| ON LAST KEY UNIT (FIG. 1) SEE NOTE 106                                                                                                                                                                               | WHEN ALL LINES ARE IN THE FIRST GROUP AND INTERCOM LINE IS PROVIDED BUT NOT ASSOCIATED WITH A KEY, SEE NOTE 106.                                                                          | T    |            |                                           |
|                                                                                                                                                                                                                      | WHEN ALL LINES PROVIDED ARE IN THE SECOND GROUP                                                                                                                                           |      |            |                                           |
| ON ORIGINATING KEY UNIT (FIG. 1) SEE NOTE 106                                                                                                                                                                        | WHEN LINES IN THE FIRST GROUP ONLY OR IN BOTH FIRST AND SECOND GROUP ARE PROVIDED                                                                                                         | S    |            |                                           |
|                                                                                                                                                                                                                      |                                                                                                                                                                                           |      |            |                                           |
|                                                                                                                                                                                                                      |                                                                                                                                                                                           | Q    |            |                                           |
|                                                                                                                                                                                                                      |                                                                                                                                                                                           |      |            |                                           |
|                                                                                                                                                                                                                      |                                                                                                                                                                                           | R    |            |                                           |
|                                                                                                                                                                                                                      |                                                                                                                                                                                           |      |            |                                           |

## CIRCUIT NOTES: (CONT)

102. CONT.

| FEATURE OR OPTION                                               |                                                                                                                                | FIG. | APP OR WIR | QUANTITY |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------|------------|----------|
| ON SUPPLEMENTARY KEY UNITS (FIG. 1) SEE NOTE 106                | WHEN THE LINE ASSOCIATED WITH THE FIRST KEY IS IN THE SAME GROUP AS THE LINE ASSOCIATED WITH THE LAST KEY OF THE PREC KEY UNIT |      | R          |          |
|                                                                 | WHEN THE FIRST KEY IS ASSOCIATED WITH THE FIRST LINE OF THE SECOND GROUP                                                       |      | M          |          |
| ON ORIGINATING OR SUPPLEMENTARY KEY UNITS (FIG. 1) SEE NOTE 106 | WHEN THE LAST KEY IS ASSOCIATED WITH THE LAST LINE OF THE FIRST GROUP                                                          |      | N          |          |
|                                                                 | WHEN THIS CKT IS USED IN NEW INSTALLATIONS                                                                                     |      | J          |          |
| WHEN THIS CKT IS USED FOR ADDITIONS WHERE                       | OTHER STA ARE EQUIPPED WITH THIS CKT                                                                                           |      | I          |          |
|                                                                 | ANY OTHER STA IS EQUIPPED WITH SD-69077-01 CKT                                                                                 |      | F          |          |
| WHEN THIS CKT IS USED                                           | WITHOUT FIG. 10                                                                                                                |      | ZD         |          |
|                                                                 | WITH FIG. 10                                                                                                                   |      | ZG         |          |

103.

| NETWORK |      | NETWORK VALUES     |                   |
|---------|------|--------------------|-------------------|
| NO.     | CODE | RESISTANCE IN OHMS | CAPACITANCE IN UF |
|         |      |                    |                   |

104.

| RECORD OF FIGURES, WIRING AND APPARATUS CHANGES |                               |                       |          |                |     |           |
|-------------------------------------------------|-------------------------------|-----------------------|----------|----------------|-----|-----------|
| CHANGED ON ISS                                  | IF JOB RECORDS DO NOT SPECIFY | THIS OPTION WAS FURN. | SEE NOTE | USE IN CIRCUIT |     |           |
|                                                 |                               |                       |          | STD            | ASM | MD        |
| 1                                               |                               |                       |          | G              |     | Y         |
|                                                 |                               |                       |          | Z              |     | X         |
|                                                 |                               |                       |          | U              |     | X         |
|                                                 |                               |                       |          | F              |     | H         |
| 30                                              | A                             | B OR E                | 102      | A, E           |     | B         |
|                                                 |                               |                       |          | FIG. 8         |     | FIG. 3    |
|                                                 | 2A OR 2B                      | 2A                    |          | 2B             |     | 2A        |
|                                                 | 2C OR 2D                      | 2C                    |          | 2D             |     | 2C        |
| 40                                              | 2F                            | 2E                    |          | 2F             |     | 2E        |
|                                                 |                               |                       |          | FIG. 8         |     |           |
| 50                                              |                               |                       |          | FIG. 10        |     | FIG. 7    |
|                                                 |                               |                       |          | 274AH 1NDR     |     | 274T 1NDR |

SD-69195-0101

KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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## CIRCUIT NOTES: (CONT)

105. NOT MORE THAN 20 (HOLD) LAMPS OR 20 (LINE AND BUSY) LAMPS SHALL BE MULTIPLIED TO ANY ONE H OR L LEAD.
106. (A) TWO GROUPS OF LINES CAN CONNECT TO FIG. 1, THE FIRST REQUIRING A BRIDGE CIRCUIT AND THE SECOND REQUIRING A BATTERY FEED CIRCUIT. IN THE FIRST GROUP ARE CENTRAL OFFICE LINES, PBX LINES, SECRETARIAL LINES, AUTOMATIC TIE LINES TO PBX AND LINE CIRCUITS OF KEY TELEPHONE SYSTEM NO. 1A1. IN THE SECOND GROUP ARE RINGDOWN TIE LINES, STATION LINES AND AUTOMATIC TIE LINES TO OTHER KEY EQUIPMENT.
- INTERCOMMUNICATING LINES SHALL BE IN GROUP 2 IF OTHER LINES IN GROUP 2 ARE PROVIDED, OTHERWISE THE INTERCOMMUNICATING LINES SHALL BE IN GROUP 1.
- (B) WHEN LINES IN THE FIRST GROUP ARE PROVIDED, THEY SHALL BE CONNECTED IMMEDIATELY FOLLOWING FIG. 2.
- (C) THE KEY UNITS NORMALLY ARE WIRED IN ACCORDANCE WITH W OPTION.
- (D) TERMINALS NO. 1 AND NO. 3 ARE PROVIDED ONLY ONCE PER LINE KEY UNIT (FIG. 1). SEE EQUIPMENT NOTES 201, 202, 203, 204, 205, AND 206.
- (E) WHEN LINE CIRCUITS OF KEY TELEPHONE SYSTEM NO. 1A1 ARE USED WITH 101A KEY EQUIPMENTS, THE LAMP GROUND AND SIGNAL GROUNDS OF THE KEY TELEPHONE SYSTEM NO. 1A1 SHALL BE THE SAME AS THE GROUND OF THE KEY EQUIPMENT.
108. WHEN EXPERIENCE INDICATES THAT AN EXCESSIVE AMOUNT OF A3 LAMPS BURN OUT, THE TELEPHONE CO. MAY REPLACE ALL LAMPS AT THE STATION BY A1 LAMPS PROVIDING THE ILLUMINATION FROM A1 LAMPS IS SATISFACTORY.
109. WHEN LINE CIRCUITS OF KEY TELEPHONE SYSTEM NO. 1A1 ARE PROVIDED THE ASSOCIATED HOLD LAMP SHALL BE REMOVED AND THE LINE AND BUSY LAMP SHALL BE THE TYPE CALLED FOR IN INDICATIONS OF THE KEY TELEPHONE SYSTEM NO. 1A1 INSTALLATION. EXCEPT WHEN USED WITH THE CO OR PBX LINE CKT FOR JOINT USE THE HOLD LAMP NEED NOT BE REMOVED.
110. THE AUTOMATIC CUTOFF FEATURE SHALL NOT BE PROVIDED WHEN LINE CIRCUITS OF KEY TELEPHONE SYSTEM NO. 1A1 ARE PROVIDED.
111. WHEN USED WITH KEY TELEPHONE SYSTEM NO. 1A1 THE S CONTACT SHALL BE ADJUSTED TO BREAK LAST ON SLOW RELEASE OF LINE KEY.
112. ADJUST BL-RH CONTACTS TO MAKE FIRST WHEN USED WITH NO. 1A1 CIRCUITS.

## INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.

DRAWING  
ISSUE

5D

BY: BNC  
DNCBM  
GFFIGURES AND  
OPTIONS ON  
THIS DWG

| CKT<br>FIG. | APF OR<br>WIRING |
|-------------|------------------|
| 1           | A Z ZA           |
| 2           | B Y ZB           |
| 3           | C X              |
| 4           | D R ZD           |
| 5           | V ZE             |
| 6           | U ZF             |
| 7           | T ZG             |
| 8           | S                |
| 9           | R                |
| 10          | Q                |
|             | P                |
|             | N                |
|             | M                |
|             | K                |
|             | J                |
|             | H                |
|             | G                |
|             | F                |
|             | E                |
|             | D                |
|             | C                |
|             | B                |
|             | A                |

SHOW  
FRONT↑ LINE  
↓ LINESHOW  
FRONT↑ HOLD  
↓ FLASH & RINGKEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUITBELL TELEPHONE LABORATORIES  
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3S

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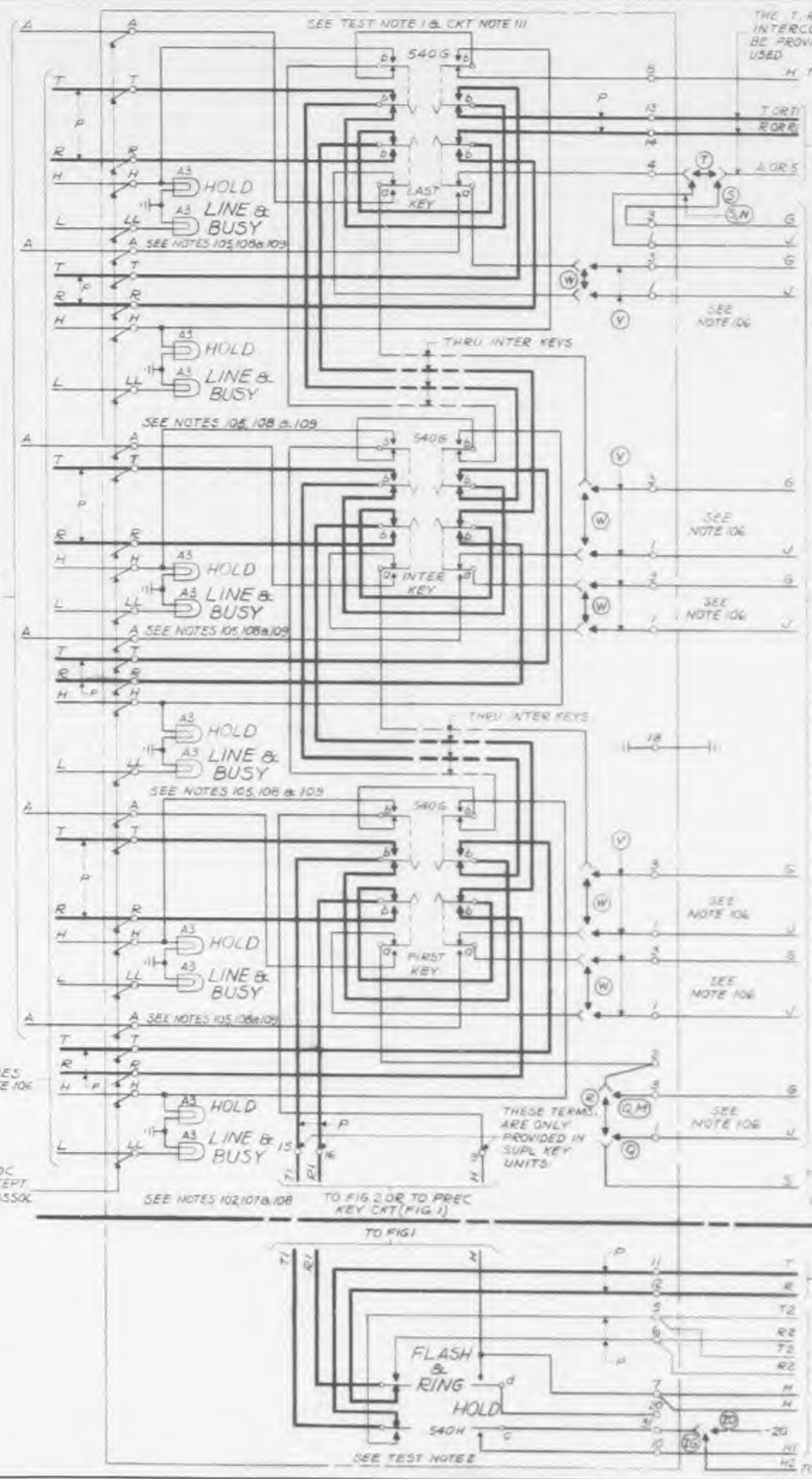
FIG.1  
LINE KEY CIRCUIT

- (Y) J53005A
- (K) J53005B
- (X) J53005C
- (H) J53005L
- (G) J53005S
- (Z) J53005T
- (U) J53005U
- (P) J53005W

TO LINES OR TO FIG.7 OR  
FIG.10 FOR KEY TEL SYS  
NO.1A1 RINGDOWN TIE LINE  
OR STA CKTS

TO OTHER FIGS ASSOC  
WITH SAME LINES EXCEPT  
FOR LEAD A WHEN ASSOC  
WITH FIG.7

FIG.2  
FLASH, RING AND  
HOLD KEY  
(G,Z,Y,K) ONLY



THE T, R AND A LEADS TO THE  
INTERCOM LINE CKT SHALL NOT  
BE PROVIDED WHEN FIG.4 OR B IS  
USED

H TO SUCC KEY  
CKT FIG.1

TO INTERCOM  
LINE CKT OR  
TO SUCC KEY  
CKT FIG.1

TO FIG.3

TO FIG.4, 6, 8  
OR 9 OR TO  
PREC FIG.1

TO FIG.3 OR FIG.6  
IF PROVIDED  
OR TO FIG.5  
OR TEL SET CKT

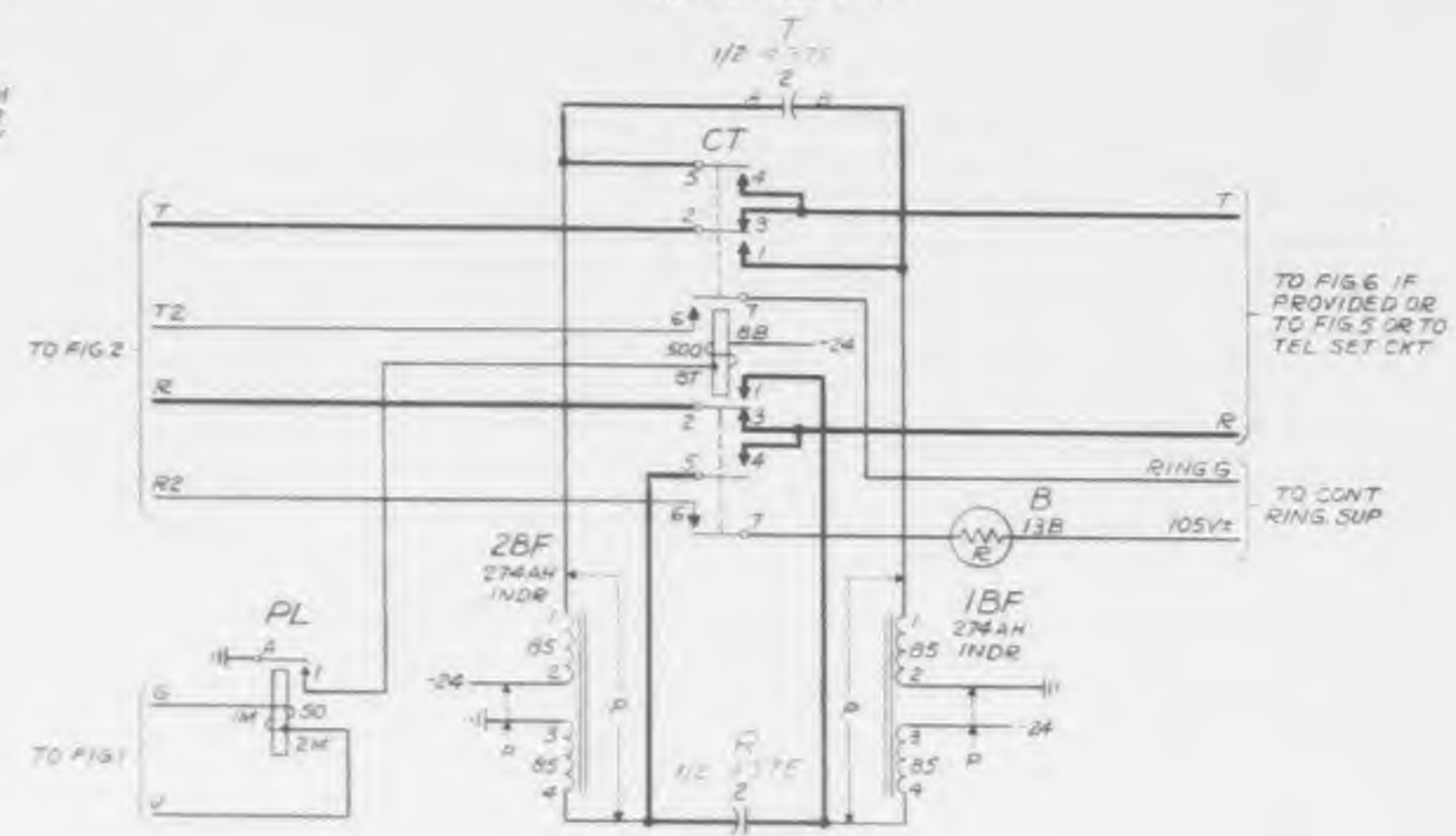
TO FIG.3

TO FIG.1  
OR FIG.10

TO FIG.4, 6, 8  
OR 9

TO FIG.10

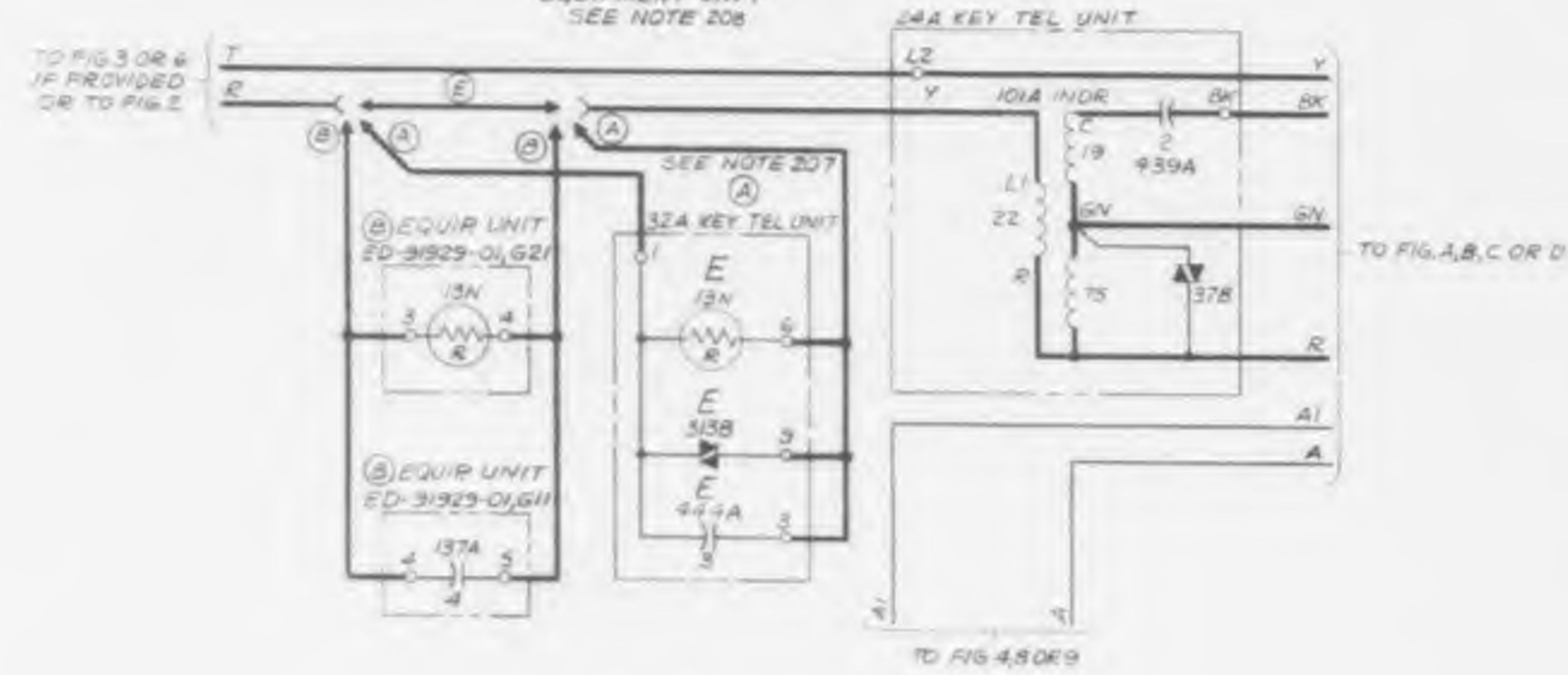
FIG.3  
BATTERY SUPPLY CKT



TO FIG.6 IF  
PROVIDED OR  
TO FIG.5 OR TO  
TEL SET CKT

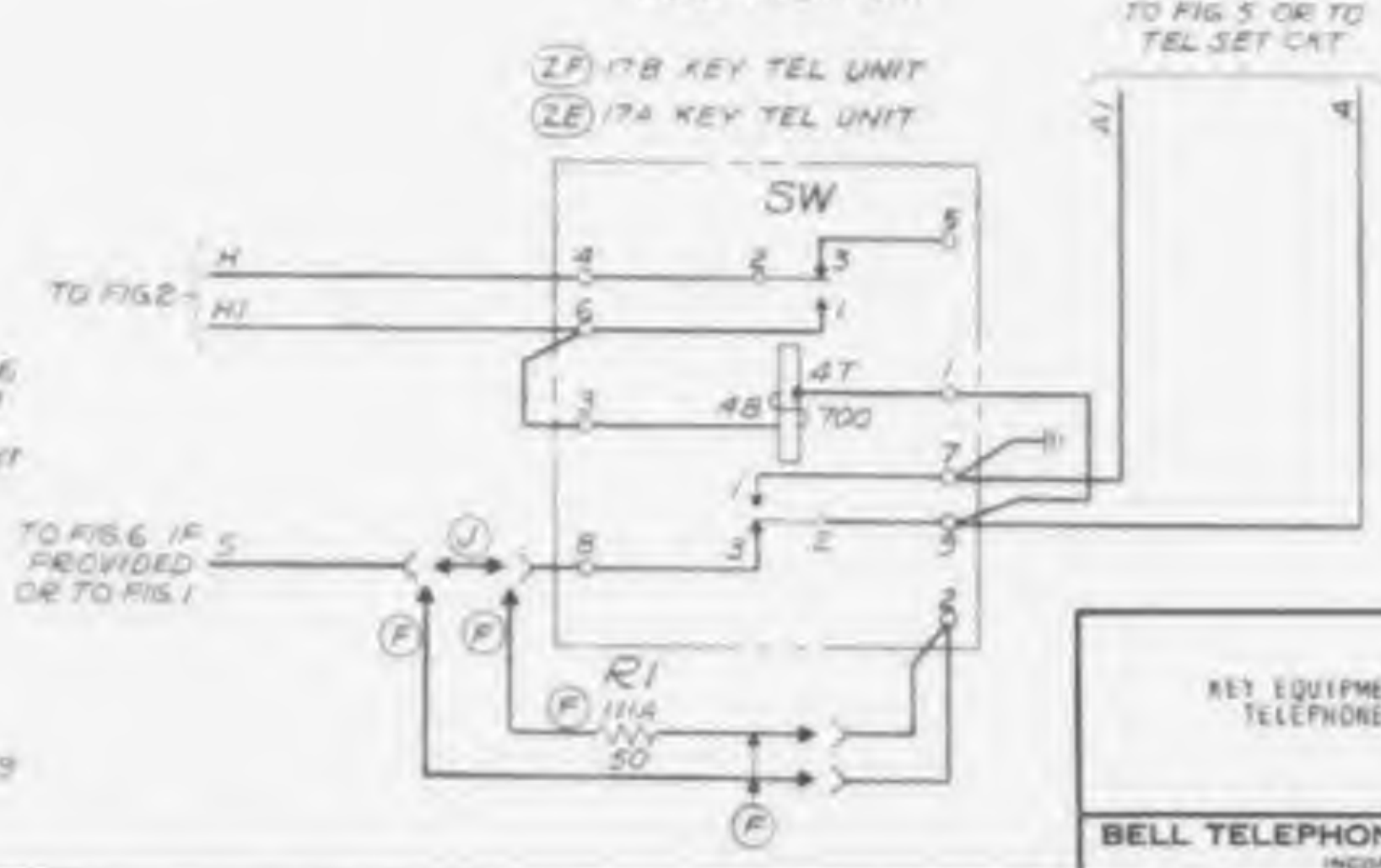
TO CONT  
RING SUP

FIG.5  
TELEPHONE SET  
EQUIPMENT UNIT  
SEE NOTE 208



TO FIG.4, 6, 8  
OR 9

FIG.8  
HOLD RELAY CKT



KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

BELL TELEPHONE LABORATORIES  
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SD-69195-0103



FIG. 6  
AUTOMATIC CUTOFF CIRCUIT

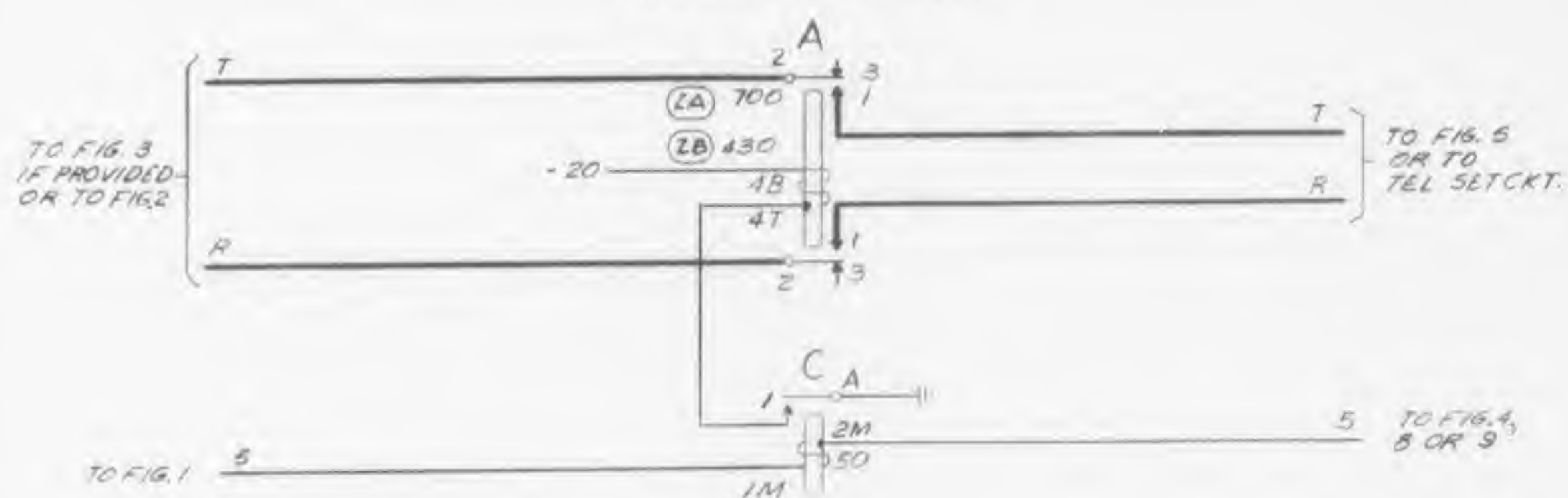


FIG. 9  
HOLD RELAY CIRCUIT

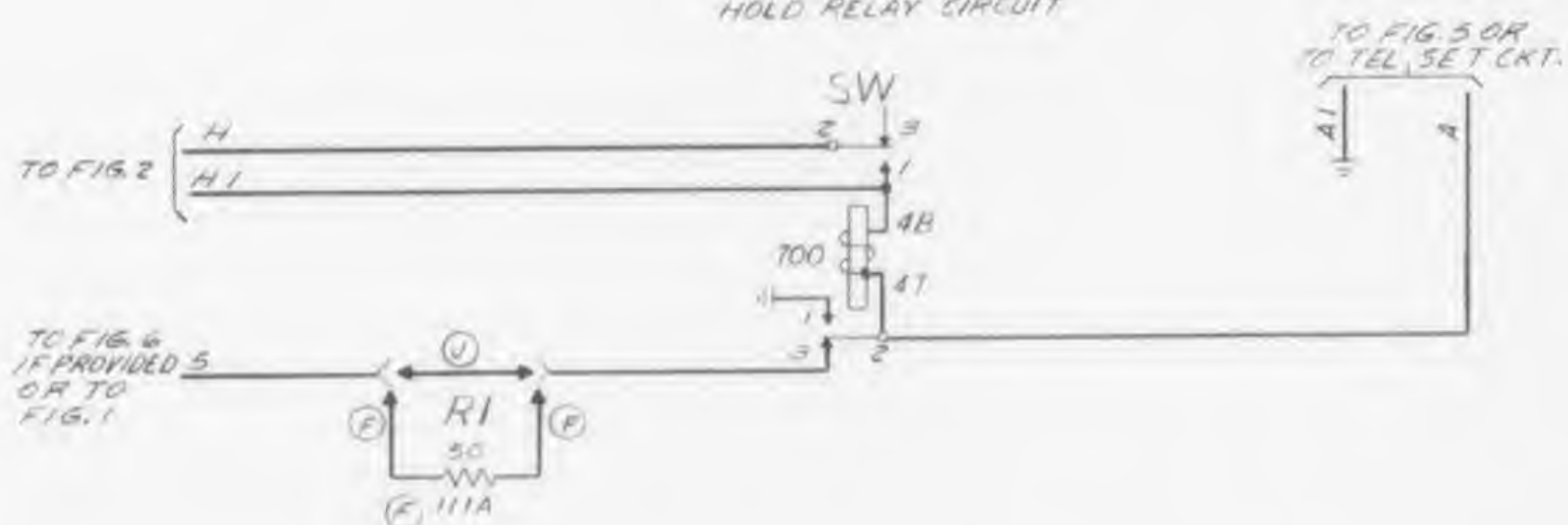
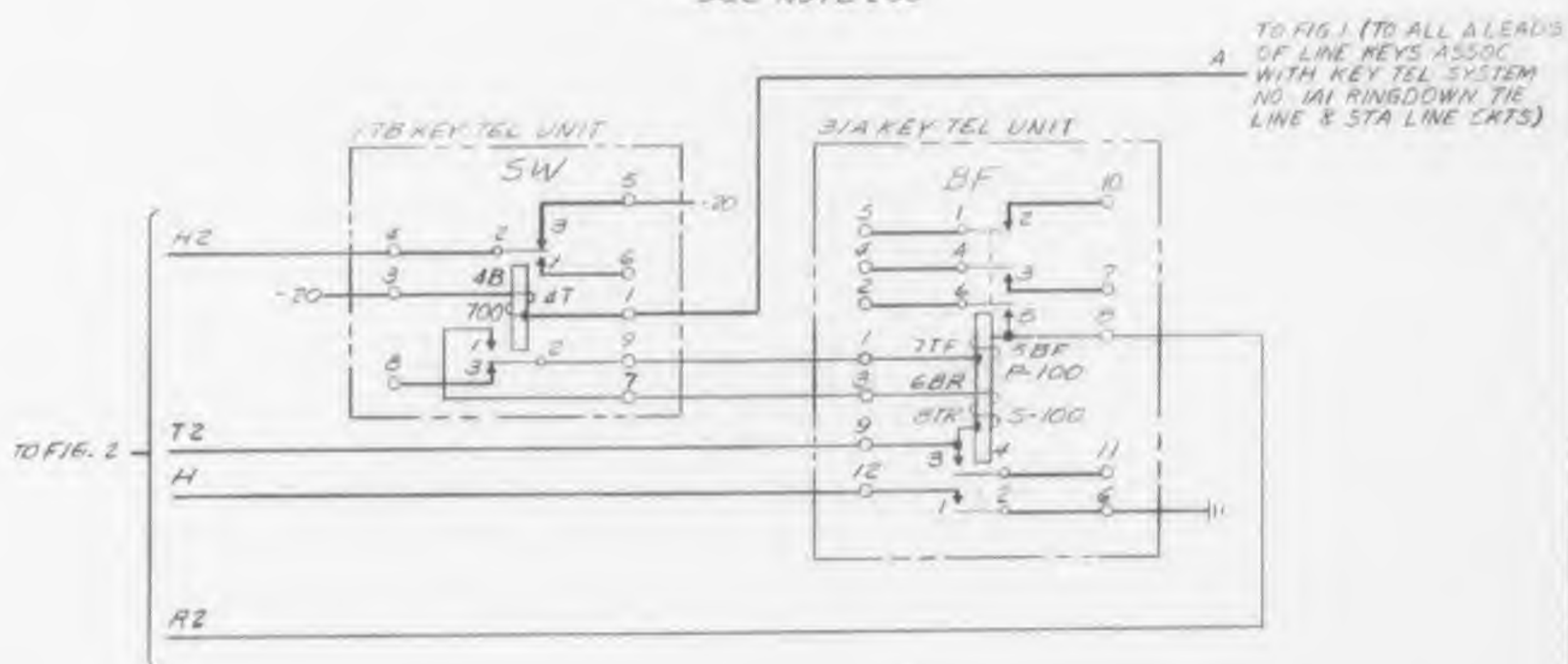


FIG. 10  
SIGNALING CIRCUIT  
SEE NOTE 209



SD-69195-0104

KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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FIG. A

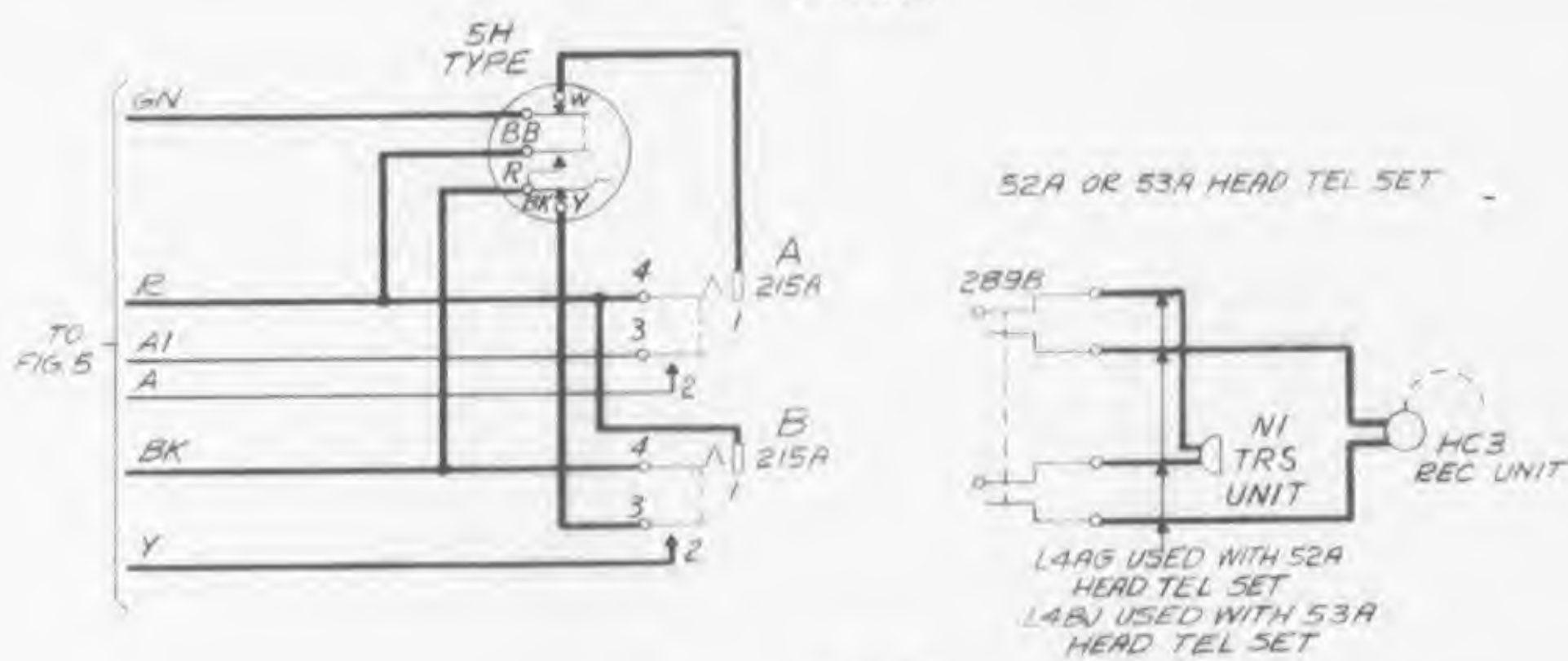


FIG. 8

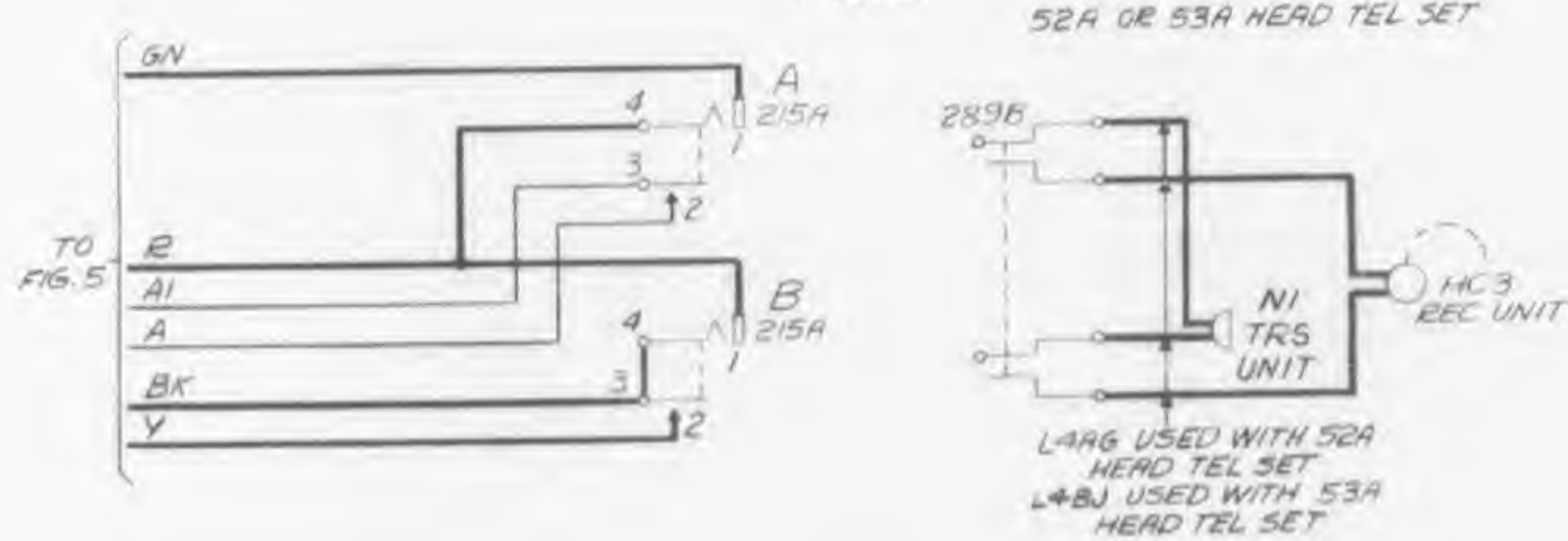


FIG. C

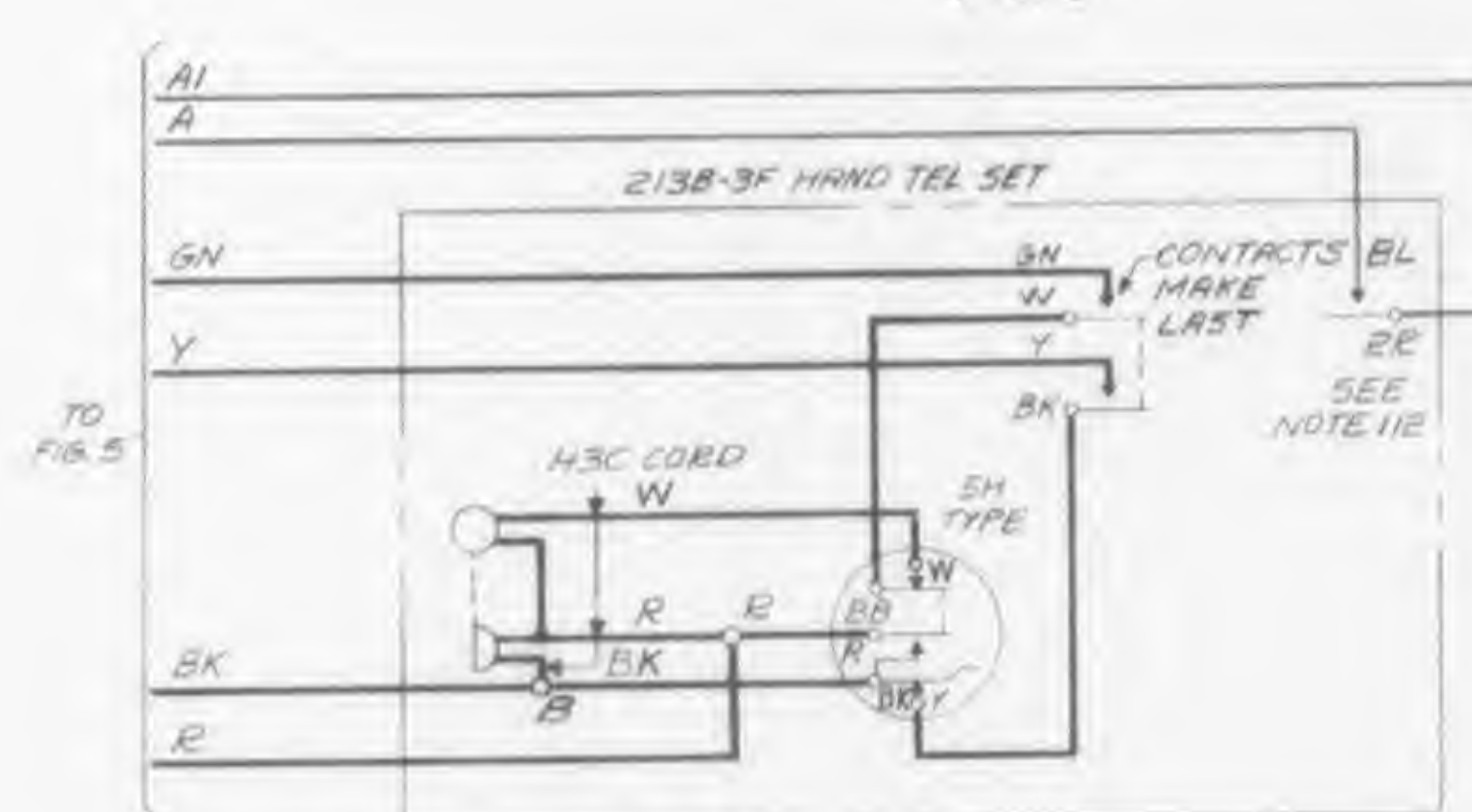
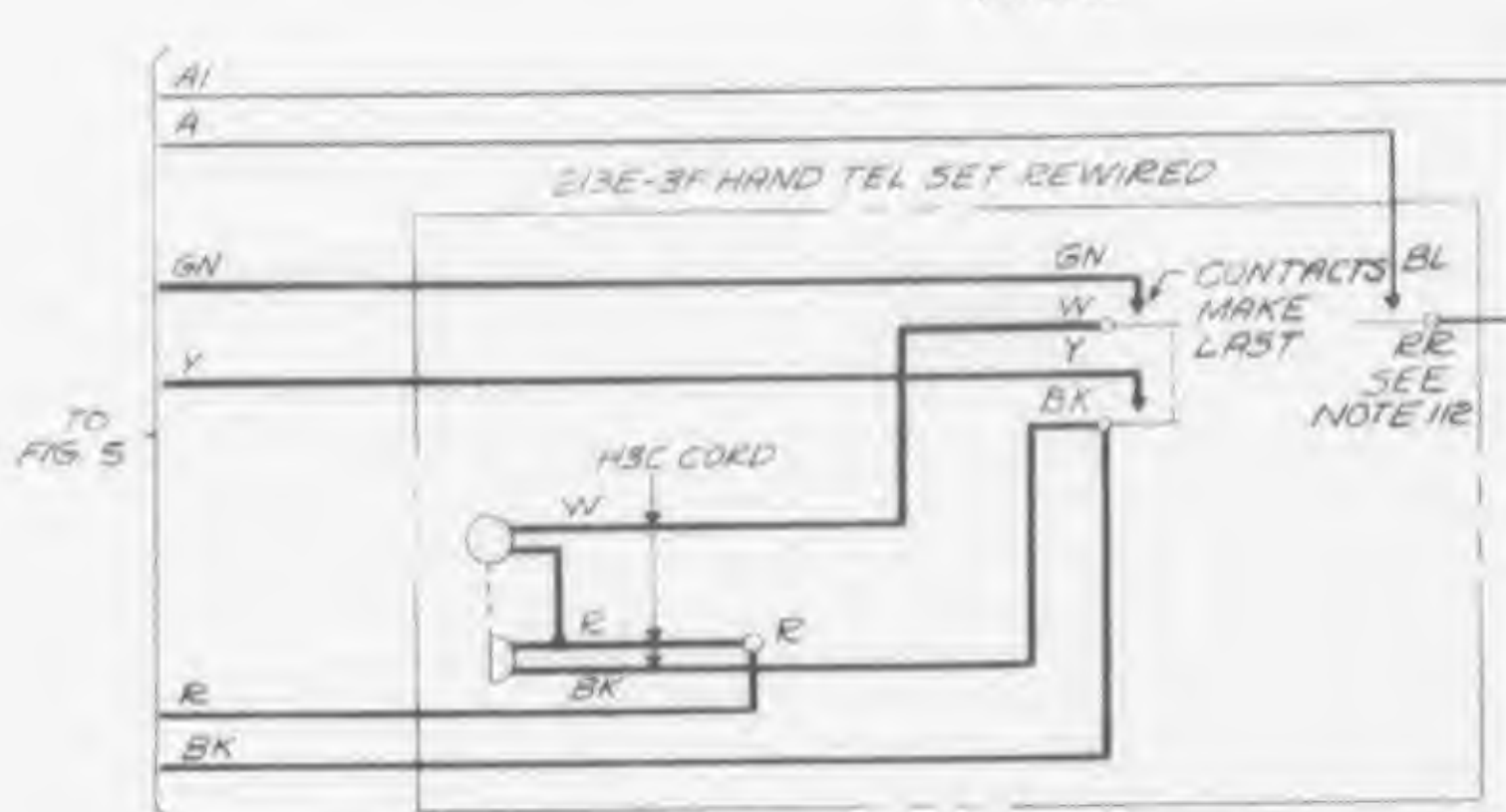


FIG D



KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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FIG. 4 (MFR DISC)  
HOLD RELAY CIRCUIT

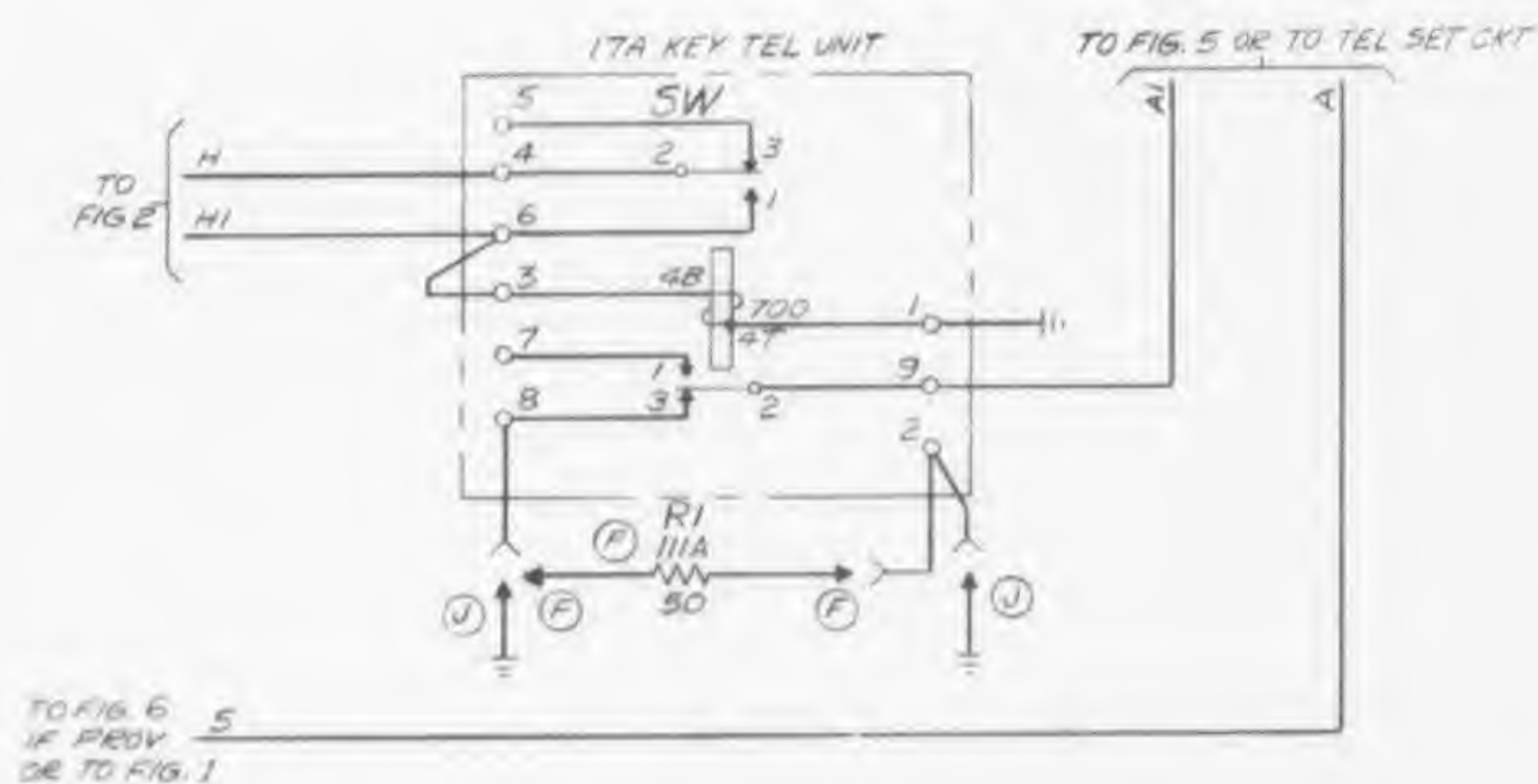
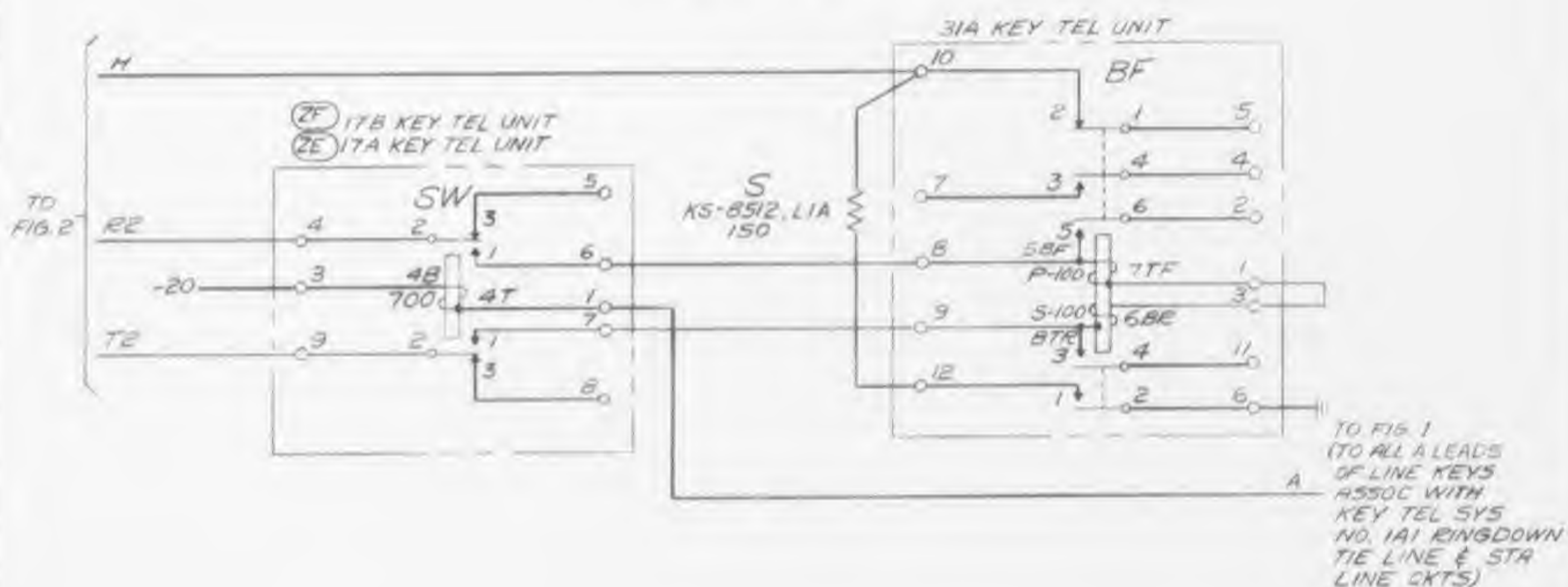


FIG. 7 (MFR DISC)  
SIGNALING CIRCUIT



SD-69195-0106

KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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| SD-69195-01                                                |       |        |      |          |            |          |                     |                |          |               |               |          |               |            | CIRCUIT REQUIREMENTS    |       |                        |    |    |         |  |  |  |  | DRAWING<br>ISSUE |  |
|------------------------------------------------------------|-------|--------|------|----------|------------|----------|---------------------|----------------|----------|---------------|---------------|----------|---------------|------------|-------------------------|-------|------------------------|----|----|---------|--|--|--|--|------------------|--|
| KEY EQUIPMENT NO. 101A OR 101B TEL AND KEY CKT (TEL & KEY) |       |        |      |          |            |          |                     |                |          |               |               |          |               |            | 5D                      |       | 5M                     |    |    |         |  |  |  |  |                  |  |
| APPARATUS                                                  |       |        |      | MECH REQ |            |          | CIRCUIT PREPARATION |                |          |               | TEST SET PREP |          | SEE TEST NOTE |            | DIRECT CURRENT FLOW REQ |       |                        |    |    | REMARKS |  |  |  |  |                  |  |
| DESIG                                                      | CODE  | OPTION | FIG. | RSP FIG  | CONT PRESS | ARM TRVL | BLOCK OR INSULATE   | TEST CLIP DATA |          | TEST SET PREP | SEE TEST NOTE | TEST WDG | TEST FOR      | AFTER SOAK | TEST                    | READJ |                        |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        |      |          |            |          |                     | CONN BAT.      | CONN GRD |               |               |          |               |            |                         |       | MA                     | MA | MA |         |  |  |  |  |                  |  |
| RELAYS                                                     |       |        |      |          |            |          |                     |                |          |               |               |          |               |            |                         |       |                        |    |    |         |  |  |  |  |                  |  |
| A                                                          | U735  | ZA     | 6    | 132/132  | H          | 47       |                     |                | T(A)     | GRD           |               |          | 0             |            | 17                      | 16    |                        |    |    |         |  |  |  |  |                  |  |
|                                                            | Y209  | ZB     | 6    | 175/175  | H          | 47       |                     |                | T(A)     | GRD           |               |          | 0             | FS         | 24.5                    | 23    |                        |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        |      |          |            |          |                     |                | T(A)     | GRD           |               |          | H             | FS         | 2.9                     | 2.7   |                        |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        |      |          |            |          |                     |                | T(A)     | GRD           |               |          | R             | FS         | 1.4                     | 1.7   |                        |    |    |         |  |  |  |  |                  |  |
| C                                                          | B459  |        | 6    | 6        |            | 30       |                     |                | IM(C)    | BAT.          |               |          | 0             |            | 5.9                     | 5.6   | CONN DIR GRD TO 2M(C)  |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        |      |          |            |          |                     |                | IM(C)    | BAT.          |               |          | R             |            | 1.3                     | 1.4   |                        |    |    |         |  |  |  |  |                  |  |
| CT                                                         | U740  |        | 3    | 145/145  | H          | 47       |                     |                | T(CT)    | GRD           |               |          | 0             |            | 20.5                    | 19.5  |                        |    |    |         |  |  |  |  |                  |  |
| PL                                                         | B459  |        | 3    | 6        |            | 30       |                     |                | IM(PL)   | BAT.          |               |          | 0             |            | 5.9                     | 5.6   | CONN DIR GRD TO 2M(PL) |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        |      |          |            |          |                     |                | IM(PL)   | BAT.          |               |          | R             |            | 1.3                     | 1.4   |                        |    |    |         |  |  |  |  |                  |  |
| SW                                                         | UA141 |        | 9    | 132/132  | H          | 47       |                     |                | 4B(SW)   | 4T(SW)        | B/G           |          | 0             |            | 12.6                    | 12    |                        |    |    |         |  |  |  |  |                  |  |
| 17A KEY TEL UNIT                                           |       |        |      |          |            |          |                     |                |          |               |               |          |               |            |                         |       |                        |    |    |         |  |  |  |  |                  |  |
| SW                                                         | U735  |        | 4    | 132/132  | H          | 47       |                     |                | TERM. 3  | BAT.          |               |          | 0             |            | 17                      | 16    |                        |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        | 7    | 132/132  | H          | 47       |                     |                |          | TERM. 1       | GRD           |          | 0             |            | 17                      | 16    |                        |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        | 8    | 132/132  | H          | 47       |                     |                | TERM. 3  | TERM. 1       | B/G           |          | 0             |            | 17                      | 16    |                        |    |    |         |  |  |  |  |                  |  |
| 17B KEY TEL UNIT                                           |       |        |      |          |            |          |                     |                |          |               |               |          |               |            |                         |       |                        |    |    |         |  |  |  |  |                  |  |
| SW                                                         | UA141 |        | 7    | 132/132  | H          | 47       |                     |                |          | TERM. 1       | GRD           |          | 0             |            | 12.6                    | 12    |                        |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        | 8    | 132/132  | H          | 47       |                     |                | TERM. 3  | TERM. 1       | B/G           |          | 0             |            | 12.6                    | 12    |                        |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        | 10   | 132/132  | H          | 47       |                     |                |          | TERM. 1       | GRD           |          | 0             |            | 12.6                    | 12    |                        |    |    |         |  |  |  |  |                  |  |
| 31A KEY TEL UNIT                                           |       |        |      |          |            |          |                     |                |          |               |               |          |               |            |                         |       |                        |    |    |         |  |  |  |  |                  |  |
| BF                                                         | UA130 |        | 7    | 120/111  | H          | 35       |                     |                | TERM. 8  | TERM. 9       | B/G           | P/S      | 0             |            | 23.0                    | 21.5  |                        |    |    |         |  |  |  |  |                  |  |
|                                                            |       |        | 10   | 120/111  | H          | 35       |                     |                | TERM. 8  | TERM. 9       | B/G           | 3 P/S    | 0             |            | 23.0                    | 21.5  |                        |    |    |         |  |  |  |  |                  |  |

TEST NOTES:

- ALL b CONTACTS SHALL MAKE BEFORE a CONTACTS.  
LOOKING AT TERM. SIDE OF KEYS, a CONTACT IS ON THE RIGHT.
- THE d CONTACT SHALL MAKE BEFORE THE c CONTACT.
- SHUNT TERMINALS 1 AND 3.

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KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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EQUIPMENT NOTES:

201. IN EACH KEY UNIT, LEADS ARE PROVIDED FROM TERMINALS 1 AND 3 FOR V WIRING AND LEFT DEAD-ENDED AT THE TIME OF MANUFACTURE. THESE LEADS ARE LONG ENOUGH TO REACH ANY KEY IN THE UNIT AND SHOULD BE LEFT THAT LENGTH WHEN CONNECTED TO THE KEYS, THE SLACK BEING SEWED TO THE LOCAL CABLE.
202. THE SPRINGS OF THE LINE KEYS AT EACH ATTENDANT POSITION ARE USED FOR A CHAIN CONTACT CIRCUIT, STARTING AT THE TELEPHONE RELAY EQUIPMENT, PASSING THROUGH THE TELEPHONE SUBSCRIBER SET AND TO THE FIRST LINE KEY IN THE ORIGINATING KEY UNIT, THENCE THROUGH THE KEYS AND, WHEN SPECIFIED, TO THE INTERCOMMUNICATING LINE CIRCUIT (THE TYPE WITHOUT KEY).
203. AT THE DIVIDING POINT BETWEEN LINE KEYS FOR FIRST GROUP AND SECOND GROUP LINES, THE (PL) RELAY WINDING MUST BE CONNECTED INTO THE CHAIN CIRCUIT. THIS IS ACCOMPLISHED BY MEANS OF THE LEADS FROM THE TELEPHONE CIRCUIT RELAY EQUIPMENT TO TERMINALS 1 AND 3 OF THE ATTENDANT KEY UNITS.
204. THE (PL) RELAY CONNECTION MAY BE MADE BETWEEN HALVES OF ANY KEY, OR BETWEEN ANY TWO ADJACENT KEYS IN A KEY BOX, USING THE DEAD-ENDED LEADS PROVIDED PER NOTE 201, THE LOCATION DEPENDING ON WHERE THE DIVISION EXISTS BETWEEN FIRST GROUP AND SECOND GROUP LINES. THE (PL) RELAY CONNECTIONS MIGHT ALSO COME BETWEEN KEY BOXES, OR IT MIGHT PRECEDE THE FIRST KEY OF THE ORIGINATING KEY BOX (WHEN ALL LINES ARE OF THE SECOND GROUP). FOR THESE LAST TWO CONDITIONS, THE LEADS FURNISHED DEAD-ENDED IN THE KEY BOXES ARE NOT USED, THE (PL) RELAY CONNECTIONS BEING ACCOMPLISHED BY STRAPS FROM TERMINALS 2 TO 3 AND FROM TERMINALS 4 TO 1 OF THE PROPER KEY UNITS.
205. IF ALL THE ATTENDANT LINES ARE PER THE FIRST GROUP AND AN INTERCOMMUNICATING LINE, WITHOUT KEY, IS REQUIRED, THE (PL) RELAY MUST BE CONNECTED BETWEEN THE LAST LINE KEY AND THE INTERCOMMUNICATING LINE CIRCUIT USING S WIRING.

206. TABLE OF CROSS-CONNECTION COMBINATIONS

| OPTION COMBINATIONS | CROSS-CONNECTION FIG. |
|---------------------|-----------------------|
| R,S                 | 55A                   |
| Q,T                 | 55B                   |
| R,T,V               | 55C,55F,55H,55L,55M   |
| R,S,T               | 55D,55I               |
| Q,R,T               | 55E,55K               |
| M,N,R,T             | 55G,55J,55N           |
|                     |                       |
|                     |                       |

207. NOT MORE THAN TWO 32A KEY TELEPHONE UNITS SHOULD BE MOUNTED IN ONE 105 TYPE APPARATUS BOX WITH A SPACE DIRECTLY ABOVE EACH UNIT VACANT TO AVOID OVERHEATING. IF ONLY ONE UNIT IS PROVIDED IT SHOULD BE MOUNTED IN THE BOTTOM OF THE BOX. 22 TYPE KEY TELEPHONE UNITS SHOULD NOT BE MOUNTED IN THE SAME BOX.
208. NOT MORE THAN TWO 24A KEY TELEPHONE UNITS SHOULD BE MOUNTED IN ONE 105 APPARATUS BOX WITH ONE UNIT MOUNTED AT THE TOP AND ONE MOUNTED AT THE BOTTOM OF THE BOX.
209. THE 17B KEY TELEPHONE UNIT AND THE 31A KEY TELEPHONE UNIT SHOULD BE MOUNTED IN THE SAME 105 APPARATUS BOX ADJACENT TO EACH OTHER.

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KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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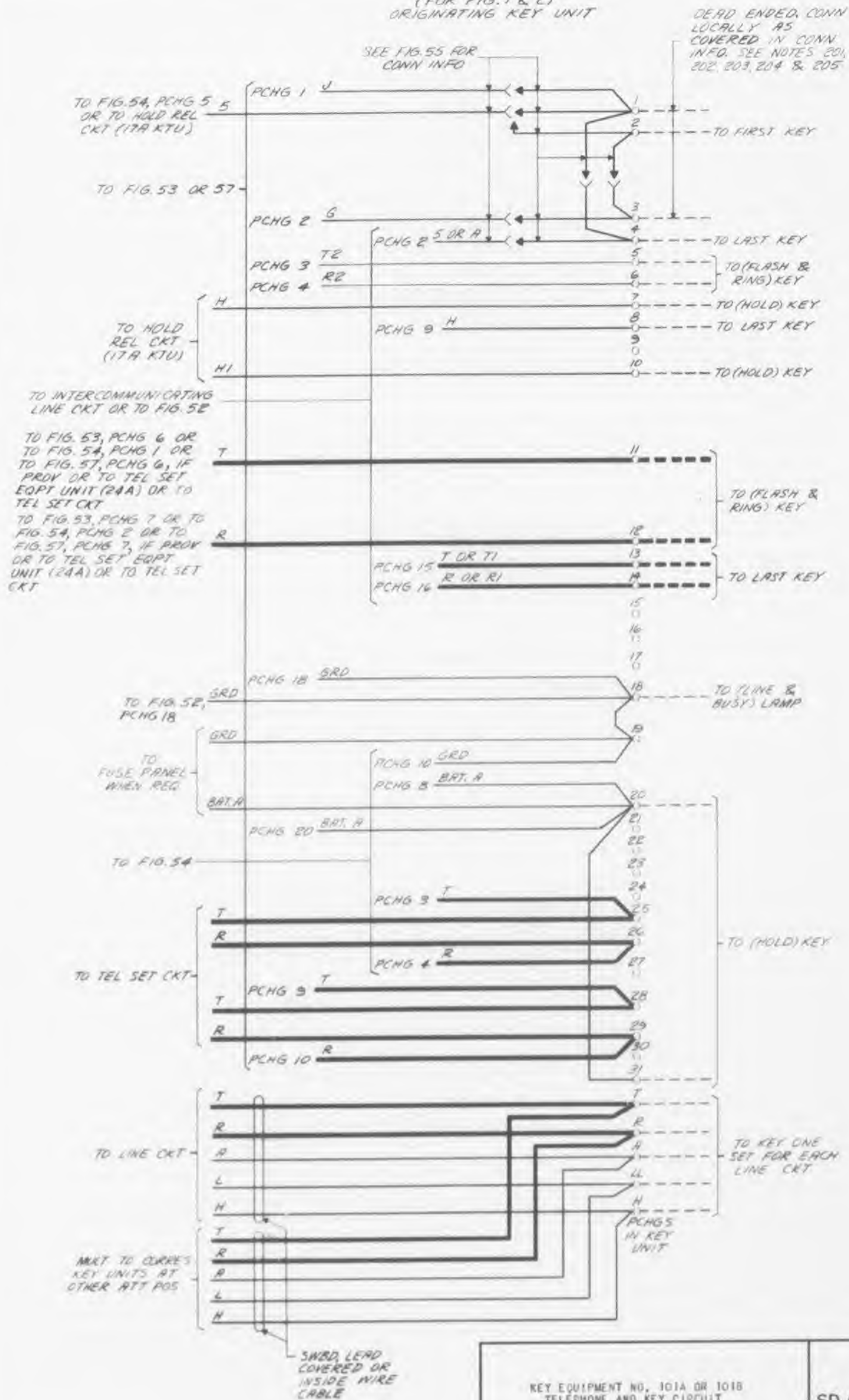
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FIG. 51 (MFR DISC)  
(FOR FIG. 1 & 2)  
ORIGINATING KEY UNIT

DRAWING  
ISSUE  
5D



SD-69195-0109

KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

BELL TELEPHONE LABORATORIES  
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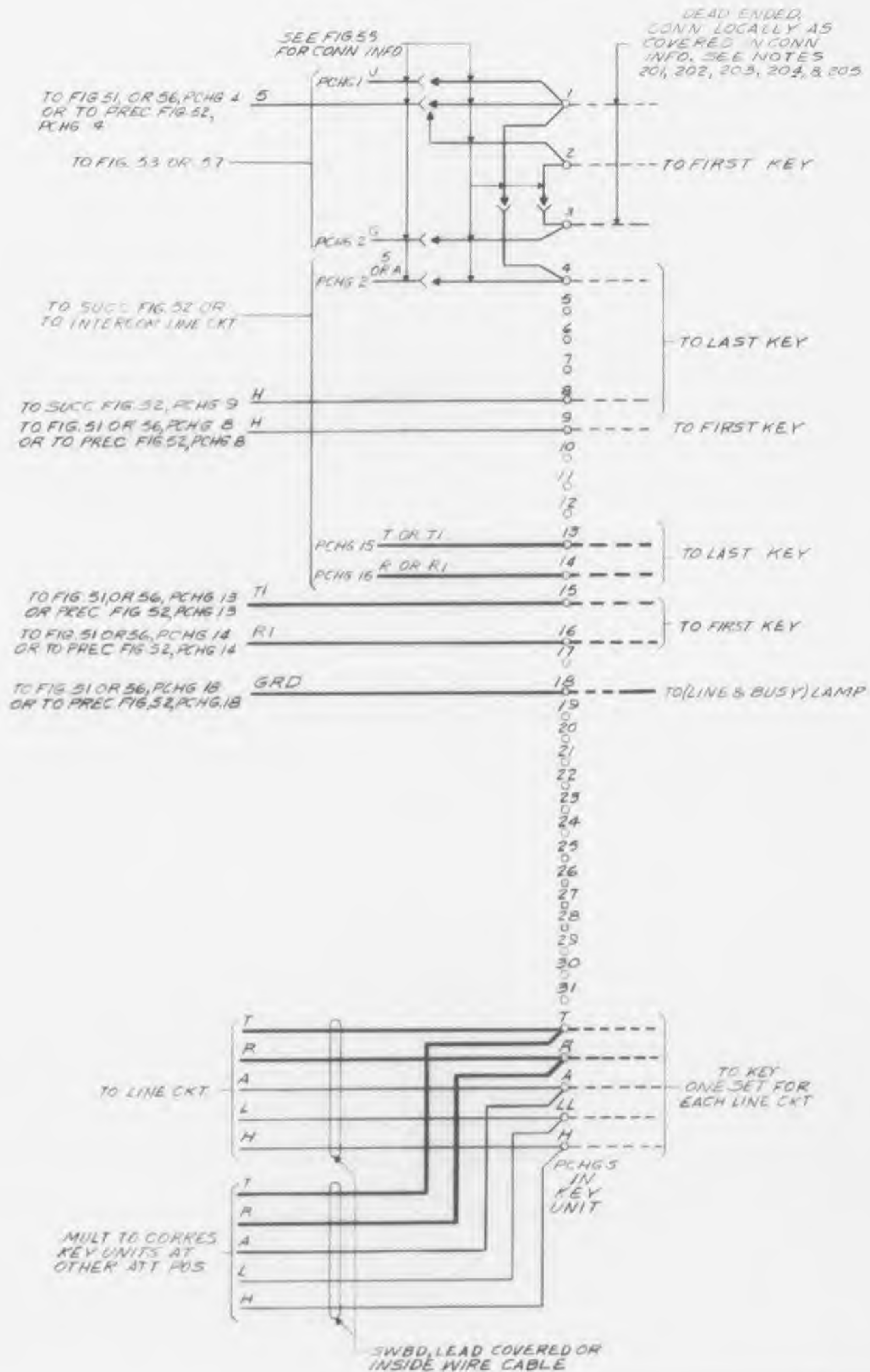
SD-69195-0109

5



FIG. 52  
(FOR FIG. 1)  
SUPPLEMENTARY KEY UNIT

DRAWING  
ISSUE  
50 50 BM  
DATE OF



SD-69195-0110

KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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FIG. 53 (MFR DISC)  
(FOR FIG. 5)

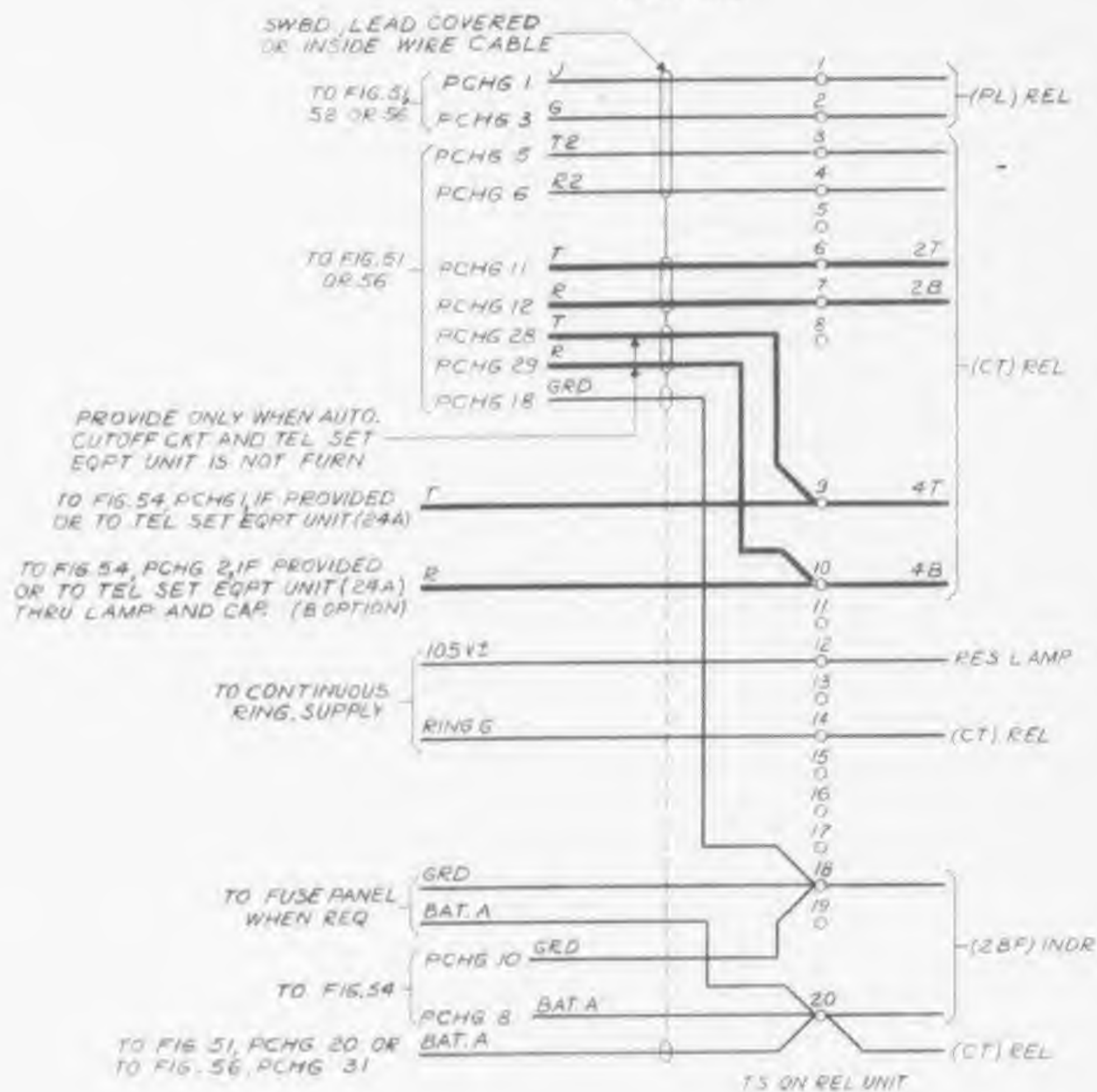


FIG. 54  
(FOR FIG. 6)



DRAWING  
ISSUE  
50 51/52 53/54 55/56 57/58 59/60 61/62 63/64 65/66 67/68 69/70 71/72 73/74 75/76 77/78 79/80 81/82 83/84 85/86 87/88 89/90 91/92 93/94 95/96 97/98 99/100

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KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

BELL TELEPHONE LABORATORIES  
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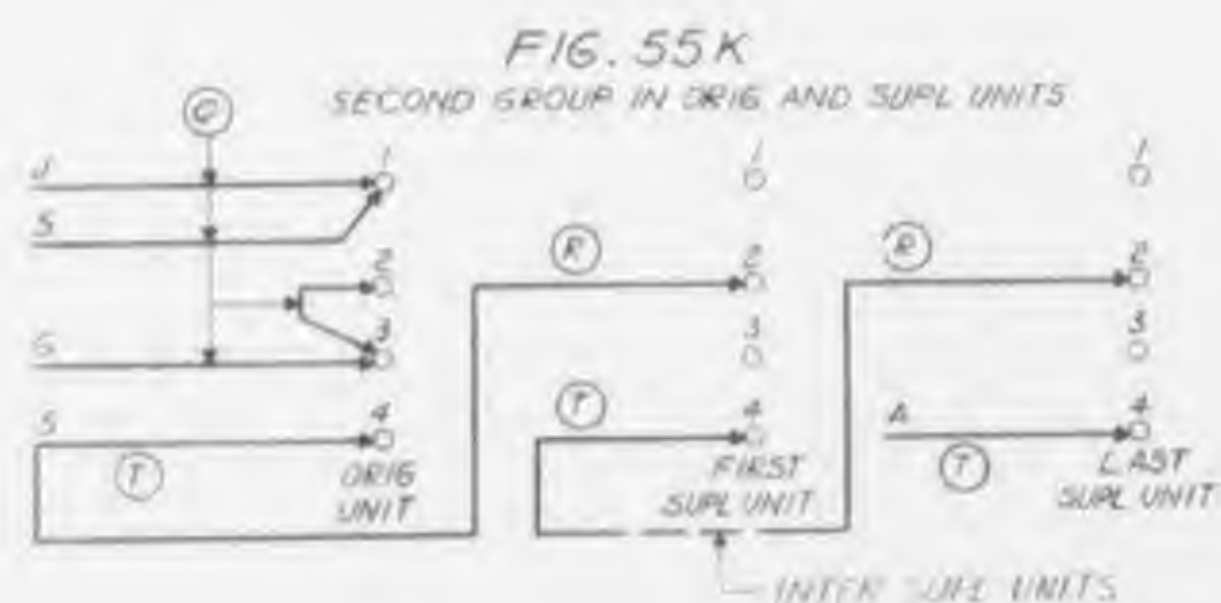
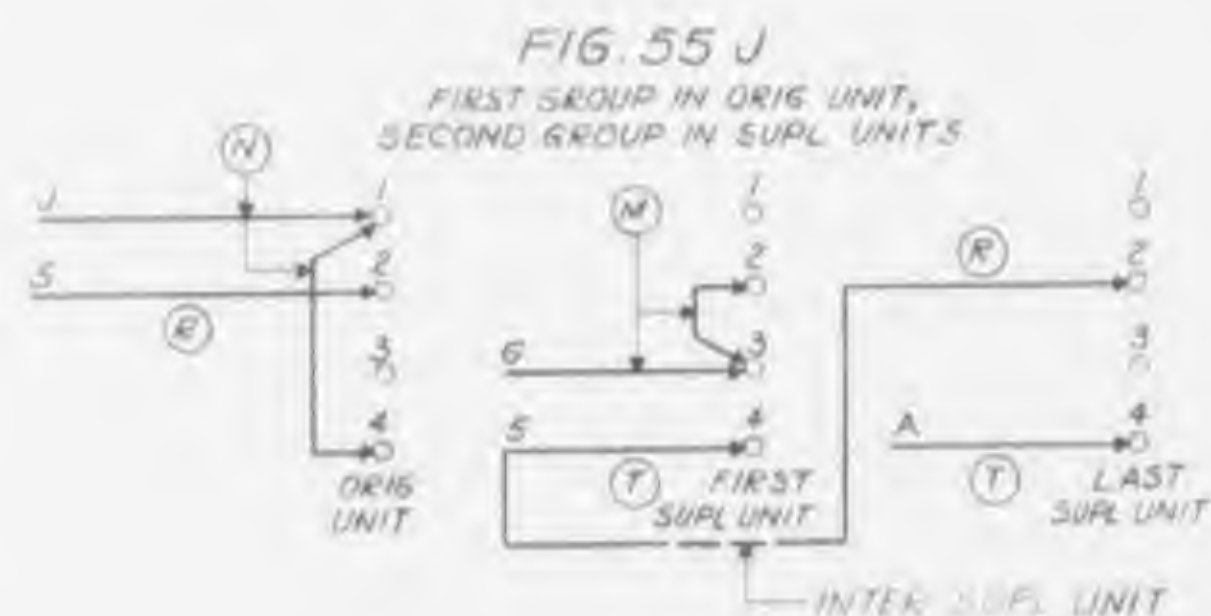
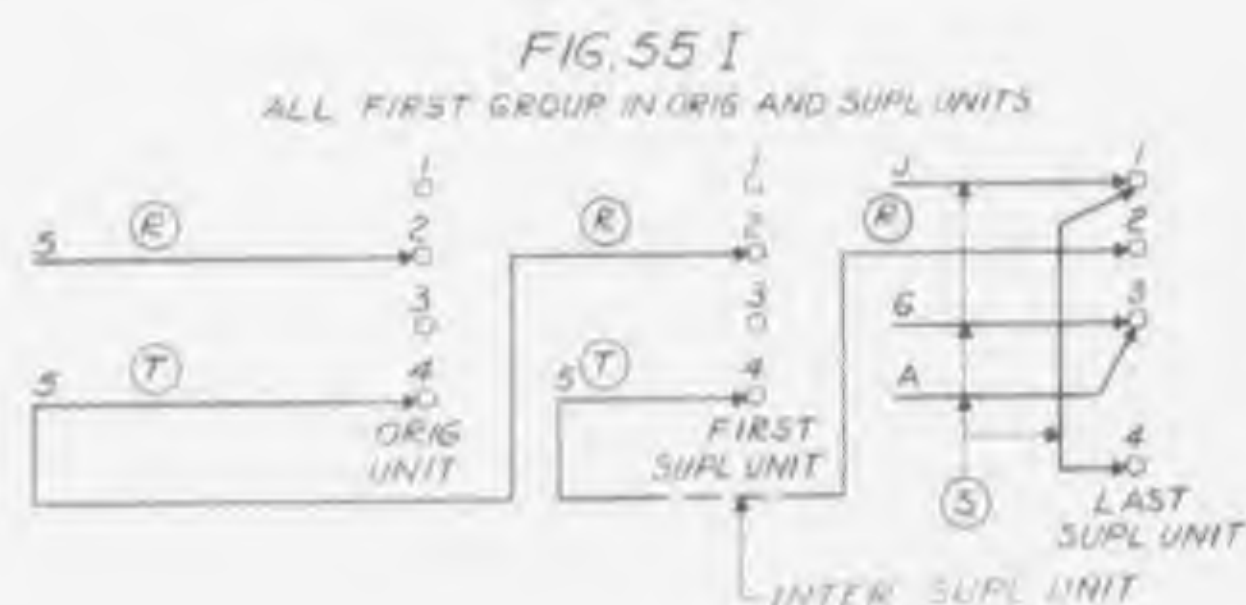
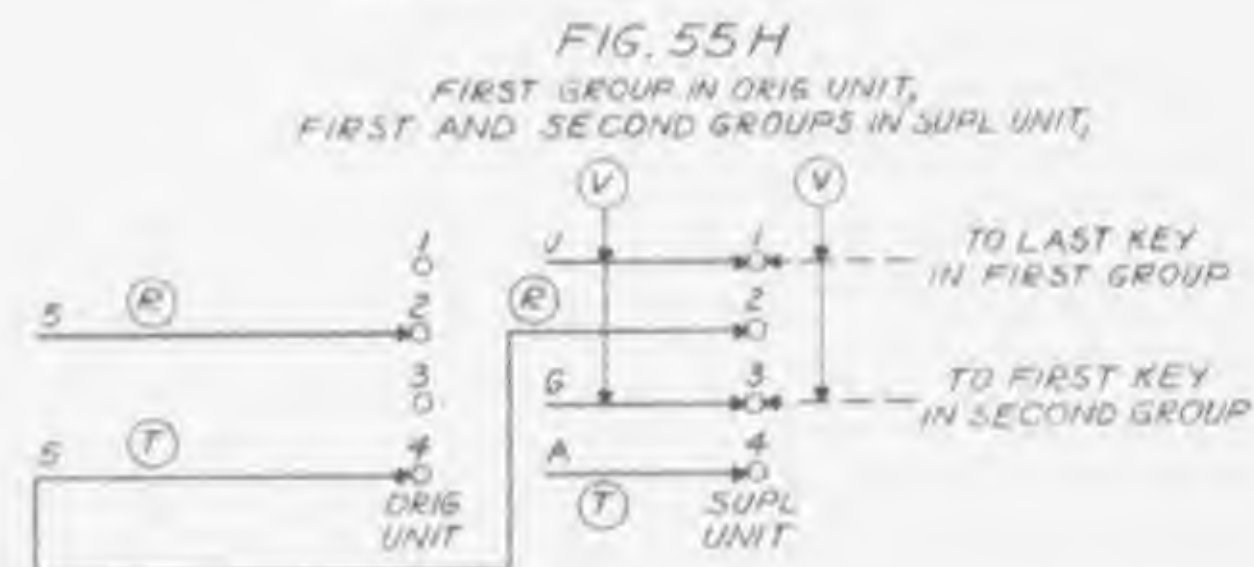
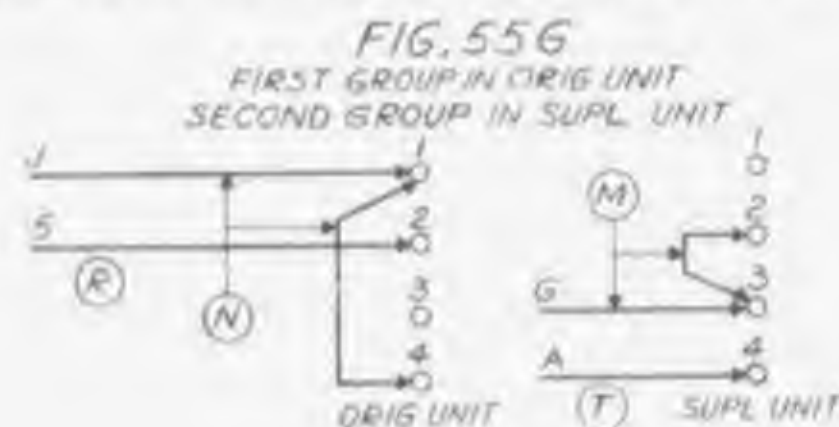
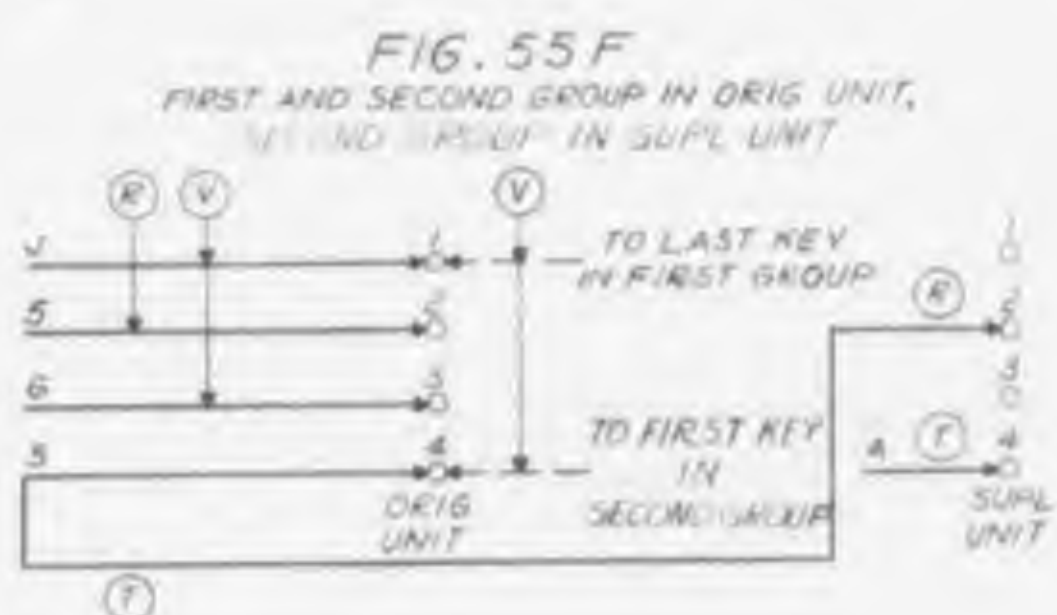
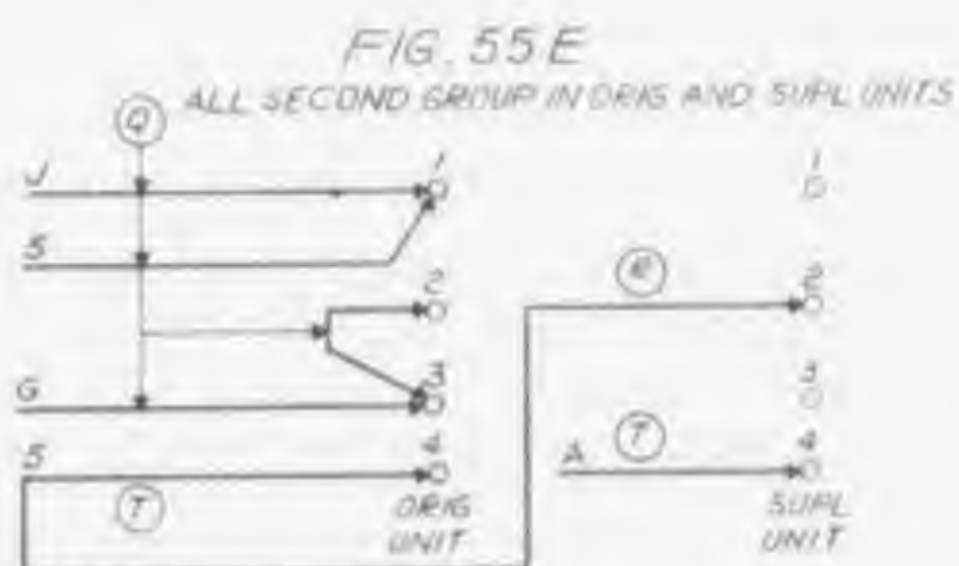
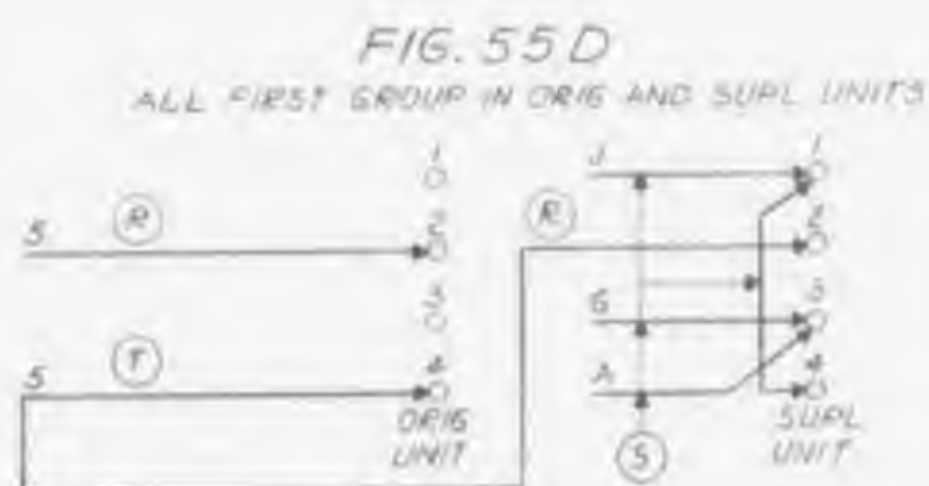
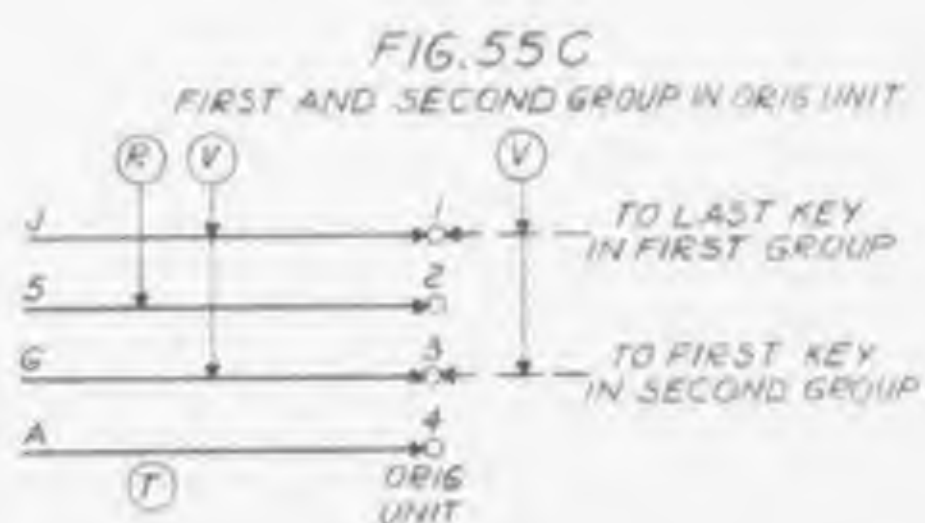
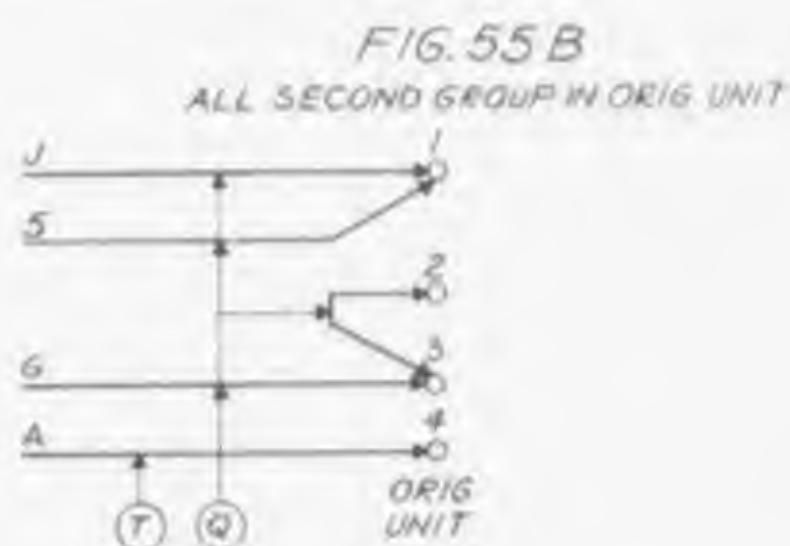
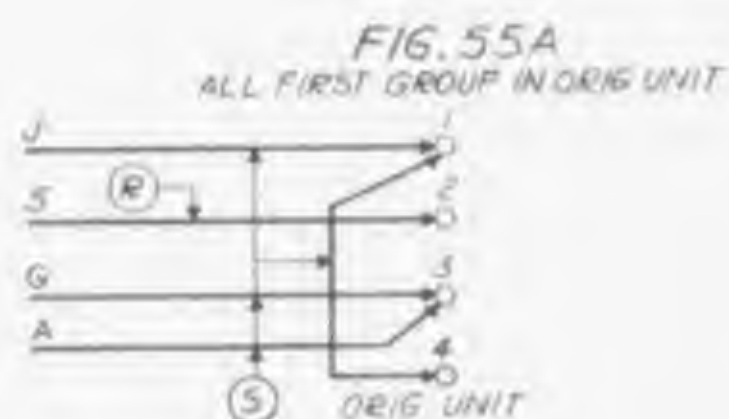
3S

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FIG. 55

CONNECTIONS TO PUNCHINGS 1, 2, 3 AND 4 FOR VARIOUS LINE COMBINATIONS OF FIRST AND SECOND GROUPS AND INTERCOMMUNICATING LINE WITHOUT A KEY. SEE NOTES 103, 201, 202, 203, 204, 205 AND 206



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KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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FIG. 55 (CONT.)  
CONNECTIONS TO PUNCHINGS 1, 2, 3, & 4 FOR VARIOUS LINE  
COMBINATIONS OF FIRST AND SECOND GROUPS AND  
INTERCOMMUNICATING LINE WITHOUT A KEY  
SEE NOTES 103, 201, 202, 203, 204, 205 & 206

FIG. 55L  
FIRST GROUP IN ORIG UNIT & NEXT SUCC. SUPL. UNITS,  
FIRST AND SECOND GROUP IN NEXT SUCC. SUPL. UNIT,  
SECOND GROUP IN SUCC. SUPL. UNITS

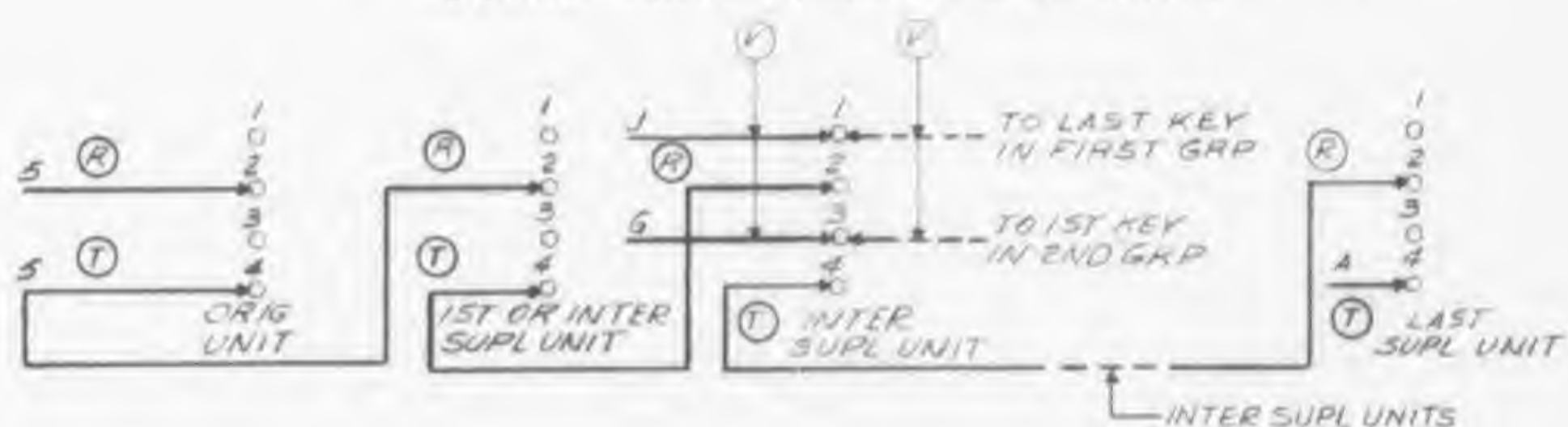


FIG. 55M  
FIRST AND SECOND GROUP IN ORIG. UNIT,  
SECOND GROUP IN SUPL. UNITS

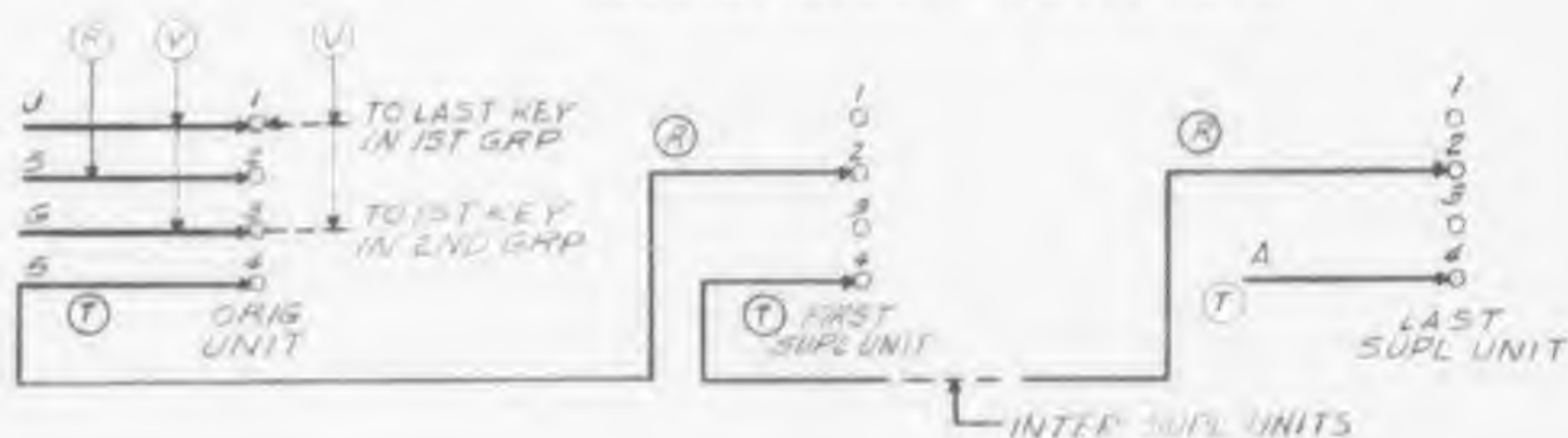
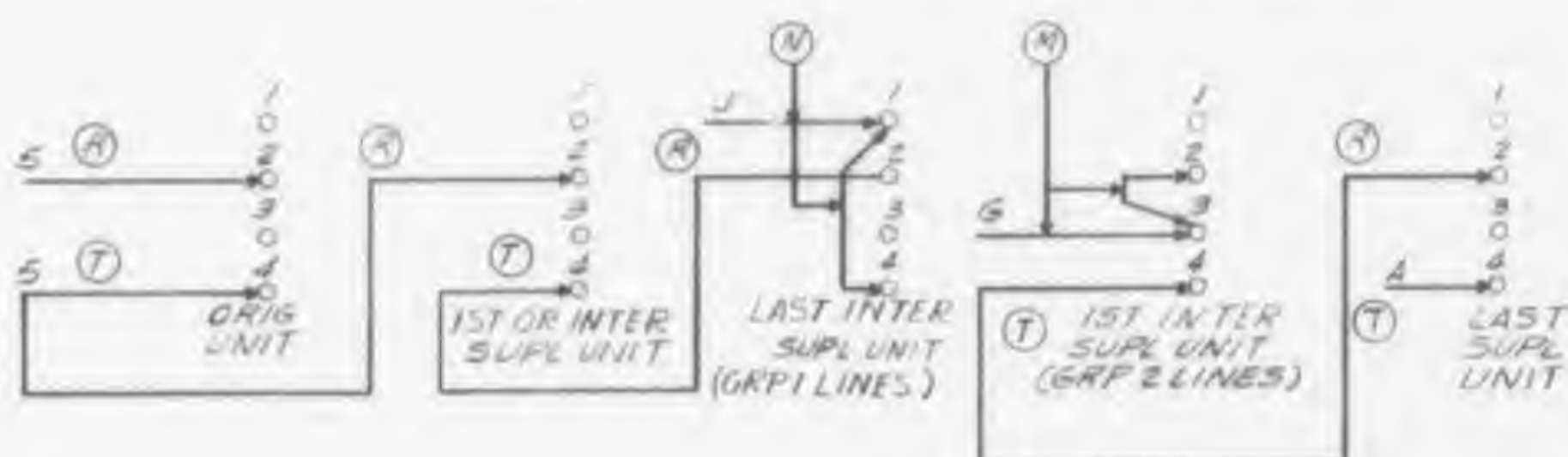


FIG. 55N  
FIRST GROUP IN ORIG AND NEXT SUCC. SUPL.,  
SECOND GROUP IN SUCC. SUPL. UNITS



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KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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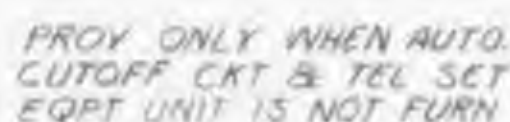
5

|                  |              |            |
|------------------|--------------|------------|
| DRAWING<br>ISSUE |              | BM<br>G.F. |
| 5D               | ST/AM<br>DHC |            |





FIG. 57  
(FOR FIGS. 3 & 9)



TO FIG. 34, PCNG, IF PROV OR  
TO TEL SET EQPT UNIT (20A) OR  
TEL SET CRT

TO FIG. 54, PCMG 2 IF PROV OR TO  
TEL SET EQPT UNIT (244) OR TEL

TO FIG. 5 (TEL SET EQPT UNIT)  
OR TO FIG. 9 (HOLD RELAY CNT)

TO CONTINUOUS RING SUPPLY

TO FIG. 54, PCMS 6, IF PROV  
OR TO FIG. 56, PCMS 1

TO FUSE PANEL WHEN REQ

TO FIG. 54

TO FIG. 51

KEY EQUIPMENT NO. 101A OR 101B  
TELEPHONE AND KEY CIRCUIT

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